The Builder.

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Researches in Greece.

IN continuation of previous remarks,* we proceed to consider some of the most striking features brought to light by Mr. Cockerell and his friends in the architectural and sculptural details of the Temple at Ægina.

The first point that occurs to us is the marked similarity in plan between such a temple as that of Panhellenian Jove and a Christian Church in the Middle Ages. As the ceremonies of the Hellenic religion consisted primarily of sacrifice, the cella of a Greek temple was not intended to accommodate a congregation, or to serve "any other purpose but that of a receptacle or habitation for the god." Accordingly every resource of costly material and of elaborate art was expended upon the idol and its immediate residence: in Mr. Cockerell's words, "the architecture with which the interior was decorated was calculated to enhance the impression of the image of the god, and made wholly subservient to that purpose. . . . . The interior was generally adorned with a double order of small but proportionate columns, much after the manner of our own Gothic cathedrals, dividing the cella into a nave and two side aisles: the whole of the nave was occupied as a niche by the colossal figure of the god, the aisles by statues of deities more or less closely associated in his worship."

Such being the case, the artist's design was, of course, to impress the mind, or rather the feelings, of the spectators, by the contrast of proportions, and by other artifices. One of the chief means on which the artist relied was the well-known Hypæthral roof,† which, in that clear and brilliant climate, was not required to be very large in dimensions, and was so arranged as to throw down the flood of light full upon the statue below. This is not the least interesting of the numerous details on which our author dwells, and one which has received an additional illustration of the utmost importance from Mr. Cockerell's researches, in the course of which he discovered the coping or top stone against which the tiling finished towards the opening, as may be seen by referring to Plate V., flank and section. It is unfortunate that the two fragments were broken at the ends, so that the mode of finishing this member towards the Hypæthral is still a matter of conjecture, though it is clear that these stones were nicely cut to receive the upper ends of the tiles and covering tiles.

The acroteria of the temple are also among the happiest novelties of the details discovered by Mr. Cockerell and his friends. No doubt, in all such buildings as the Grecian temples, some finish was needed at the ends of the roof, in order to please the eye, and gratify the taste; and, though very scanty remains of any such ornaments have come down to us, we know that they were always among the most carefully elaborated portions of these edifices.* Being elegant in form, fragile in substance, and easily transported, we can be at no loss for a reason why no perfect specimens of this particular decoration have come down to us. And accordingly our obligation is increased by the very beautiful vignettes of the eastern and western acroteria from Ægina, to which the student will do well to refer. He will find there the mode by which the acroterion, in its entire composition, was fitted on to the cymatium, and also the manner in which the figures were separately inserted in a small plinth, run with lead; and how each acroterion, as a whole, was sustained at the back by a support, at right angles to itself, in the form of a lion. It may be of interest to learn that the specimens of acroteria here given by Mr. Cockerell accord very closely with the Vitruvian rule,† which lays it down that those at the angles should be equal in height to half the tympanum of the pediment, and that the central one should be higher than the others by an eighth.

There are several other architectural details of more than ordinary interest, which the student will learn from Mr. Cockerell's book. Such, for instance, is the fact that a departure is made at Ægina from the rule of Vitruvius, and also from the usual practice in Greece, in the arrangement of the columns, which here are six in front, and twelve only (instead of thirteen and fourteen) in the flank. Such, too, is the very great depth of the tympanum beyond the plane of the entablature for the reception of the sculpture, and such the structure of the entablature itself, the cymatium and tiles. It is also not a little remarkable that the angular columns are somewhat larger in diameter than the rest, in accordance with the rule laid down by Vitruvius. Mr. Cockerell, too, dwells much on "the inclination of the axis of the columns both in the fronts and in the flanks," giving the whole pile, as he remarks, that "pyramidical effect which is universal in Greek architecture, but which we have never practised in our modern imitations."

Another matter of some importance, established by Mr. Cockerell in the course of his Æginetan investigations, is the material of which the tiling of the Grecian temples was composed. It is well known that the commissioners sent out to Ægina by the Dilettanti Society placed upon record their opinion that this material was marble; but the excavations made by Mr. Cockerell and his friends brought to light some portions of the actual tiling made of a kind of terra-cotta, which he describes in detail. "The cave tiles," he adds, "with the joint tiles, however, attached to the antifixæ, together with those surmounting the pediment, were of Parian marble: those within this border were wrought in a fine tile of light yellow earth, together with the saddle or ridge tiles, and the painted antifixæ, corresponding with those of the eaves, and surmounting the roof." Mr. Cockerell and his friends, as we learn from a casual note, had already found instances of this arrangement in the course of their researches among the ruins of the Parthenon, and in the temples at Rhamnus and Eleusis.

The plates which accompany the work will serve to show the student to what an extent colour was adopted by the architects of ancient Greece in the external decorations of their temples. Referring to this subject, our author remarks:—

"In considering a subject which appears to us so extraordinary as the external painting and gilding of architecture, it must be recollected that though the Grecian buildings were grand in their conception and idea, their scale was small; and that hence they required a greater nicety and delicacy in their execution: the colours served as a means of distinguishing and heightening the effect of the several parts otherwise inanimate. To paint white marble or other stone exposed to the open air is discordant with our northern prejudices; but if we take into account the fact that in Greece all Nature is full of vivid colour and variety, the constant white which might be in unison with our northern grey would have seemed spectral and monotonous in Ægina. It may also be observed that the mildness of the climate, and the purity of the atmosphere, rendered works of finished execution much more secure from decay, and admitted refinements in sculpture and painting that would be thrown away here in England. The inhabitants of those more settled climates, passing much of their time in the open air or under the shade of porticoes, would contemplate the highly-wrought detail of ornament on the exterior with the same convenience as we do those of our interiors. Indeed, it will be found that the chief scope of the Grecian architect lay chiefly in the exterior effect, while all within was secondary, except the provision of a receptacle sufficient for the image of the god."

To these observations Mr. Cockerell appends a remark in which we concur, to the effect that the taste for colour on their exteriors was probably much increased by the intercourse of the Greeks with Egypt, where colour was universally applied in that manner.

The other architectural details most worthy of note to the student are the curious slanting ascent at one end of the Temple, up which were driven the beasts intended for the sacrificial altar (which will be seen in Plate VI.), and a small square block of stone near this ascent, as to which Mr. Cockerell speaks a little doubtfully, though he appears to consider that it was a lesser altar, for sacrifices offered to lesser deities or heroes. It is possible that this supposition may be borne out by the well-known distinction between *ara* and *altare*, as in the lines of Virgil:—

"En, quatuor aras:
Ecce duas tibi, Daphni, duas *altaria* Phœbo."

Mr. Cockerell, however, has not confined himself to an account of the architecture of the Temple, but has devoted some space to an elaborate examination in detail of the method by which it was put together, and of the mechanical appliances adopted; which, though somewhat primitive, exhibit great constructive skill. He has shown that the columns were in part monolithic, and partly composed of frusta, and that the stones of which such columns as were not monolithic were composed were mostly raised to their places by means of ropes twisted into loops, though the block, the lewis, the lever, &c., were also called into use. From the peculiar feature of this edifice, namely, the fact of the columns being partly monolithic and partly not, Mr. Cockerell draws a very obvious confirmation of the date * which he assigns to the erection of the Temple, as arguing a transition state from the early monolithic period to the more advanced, but far less durable, plan of joining several blocks into a single shaft. It is remarkable, though easily to be accounted for, that all the columns which have reached the nineteenth century entire are of the former kind; so true is Mr. Cockerell's remark that the less artificial method is often the best, "since the simple monolithic stones have descended to our own days, whilst time has swept away the lofty edifices which subsequent ages have erected."

The great prize, however, which was gained by Mr. Cockerell and his friends, (though we cannot add that it was secured for England, as our readers are already aware), was the splendid series of sculptures which once adorned the eastern and the western pediments of the Temple at Ægina. Many of our readers, no doubt, will remember to have seen them in the Glyptothek at Munich; and those who have not will find them carefully described in Murray's "Handbook of Southern Germany;" so we will not attempt to describe them at length, or indeed do more than give a brief *resumé* of the chief points touched upon by our author in the chapter which he devotes to their enumeration and description.

Ægina, as every classical scholar knows, was the home and nursery of art a century before Athens began to assume that character. Her school of sculptors was celebrated as far back as the seventh century, and was declining when Athens was rising into artistic fame under Phidias. It is probable that the Æginetan school owed its origin to the commercial intercourse maintained in early times between that island and the colonies in Ionia; and that it was at its zenith from about the middle of the sixth to the beginning of the fifth century B.C. Be this, however, as it may,

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* See pp. 133 and 153, *ante*.

† The nature of this Hypæthral has been much discussed among learned writers, and the errors of some previous commentators on the subject have been exposed by Q. M. De Quincy,—Jupiter Olymp., paragraph xii., 262—3.

* See plates to "The Erectheum of Athens, by H. W. Inwood." Folio. London, 1827.

† Vitruv. iii. 3.

* See p. 153, *ante*.

we know from Pausanias that Ægina enjoyed a monopoly of the manufacture of the lesser accessories of sculpture, such as idols, small household statues, and decorations for temples. Still, until the excavations made in 1811 by our author and his friends, there were no authentic specimens extant of Æginetan sculptures, properly so called; and Mr. Cockerell strongly urges, as one result of his labours, that it is now an established fact that Etruria was far more indebted to Ægina than the learned had imagined, for much of the chief merit of the school of art which is generally known as Etruscan.

The sculptures dug up in Ægina were restored at Munich; but, Mr. Cockerell considers, not in a very satisfactory manner. In his opinion, each of the pediments of the temple contained not eleven only but thirteen statues; and we must own that in our judgment his reasons for this opinion seem conclusive. He gives the reader his own restoration of the entire series, in some elaborate drawings, which deserve a careful and patient study. According to his reading, the sculptures on the eastern pediment—the finer of the two in point of design, though in a less perfect state of preservation—represent a scene from the early siege of Troy by Hercules, in which Minerva forms the central figure, though it is impossible to assign names to the rest of the characters introduced into the piece. The subject of the western pediment is evidently the combat of Patroclus and Hector, as related in the Iliad of Homer. The Telamonian Ajax defends his friend, assisted by Teucer and Ajax Oileus. To the left stands Hector, who has felled him to the ground; and Hippolytus is about to strike the fatal blow. Paris, also, is clearly distinguished in the rear ground. The figures in both pediments are full of life and spirit, and, indeed, of all those characteristics which are noted by writers on early works of art—such as the energetic squareness of the attitudes, the largeness of the heads, the robust limbs, the trim hair, the hollow cheek, the long and square chin, the angular profile, the short neck, and last, not least, the gallant smile* about the mouth which is so often attributed to his heroes by Homer. Mr. Cockerell remarks that "the extreme stiffness and regularity of the drapery may have been considered as proper to the sanctity of the demigods represented, and as suited to the squareness and mechanical regularity of architecture; but doubtless it was also in a great measure conventional, and was generally employed in sculptures which bore reference to the deities." We may add that in either pediment the figures, as restored by Mr. Cockerell, are arranged on both sides in perfect accordance with the architecture, and with a gradual and harmonious succession of objects, so as to produce an admirable harmony. As to the elaborate nature of the details, Mr. Cockerell remarks:—

"In the execution we cannot but admire the enthusiasm with which the artist has laboured, completing even those parts which the eye could never reach in isolated and individual statues, and balancing them on their own limbs on plinths, by their natural equilibrium, and without any of those props and helps which, however permitted by the convention, are, nevertheless, unsightly and destructive of the true effects of statuary. Attached to a plinth, which was let into the upper surface of the cornice and run with lead, the statues were mostly cut out of one entire block, with a surprising power of execution. The shields, not more than three-quarters of an inch in the thickest part, are wrought in the solid, together with the whole figure. Not a single evidence of artificial support was discovered in the western pediment; and, in the eastern, only one foot had a solid part from the plinth, carried up a little above the ankle for this purpose. The boldness of such execution is surprising, and so is its delicacy. The curls of hair were wrought in lead (specimens of which were found in the course of our excavations): the Gorgon's head, the serpents of the Agis, the bows and arrows, the quivers, the lophos, and the cheek-pieces, were for the most part separate, and attached subsequently."

If any one of our readers desire to make himself master of these details, we must content ourselves with referring him to Plates XIV., XV., and XVI., which, together, form a study for the statuary and the scholar alike.

We shall devote one more article to this subject.

* The classical reader will thank us for appending here, from Mr. Cockerell's book, a note as interesting as it is valuable:—"These peculiarities," he writes, "are simply a reproduction in marble of the established traditions of Dorian soldiership. It was customary for the Dorian Greeks to dress their hair elaborately before entering on the fight, as we learn from the story of Leonidas at Thermopylæ. The Homeric expression for the battle is χάρμη, a derivative of the verb χαίρειν, which signifies to rejoice, and implies that the smile, if not a part of the established military demeanour in action, was the result of a spontaneous feeling, which renders it even more natural and appropriate, reminding us of the "merry men" who drew English bows against desperate odds at Agincourt. It is worthy of remark," he adds, "that on one occasion (Iliad vii. 241), Homer expresses the act of fighting on foot by the bold metaphor of μίλπεσθαι Ἄρηι—to dance a war-dance before Ares or Mars—and that one and the same word, κόσμος, not only is applied to decking the hair, but denotes the Dorian dance, the Dorian constitution, and the Dorian battle array."

ON THE PHOTOGRAPHS IN THE ARCHITECTURAL PHOTOGRAPHIC EXHIBITION OF 1861.

THE committee of the Architectural Photographic Association, not content with supplying a very large and fine collection of photographs to their subscribers to choose from, have moreover had the good fortune to secure the services of several gentlemen, very eminent for their attainments in the various styles of architecture. These gentlemen have successively addressed you upon various subjects, taking the photographs themselves as their text. It now falls to my lot to attempt the completion of the work, by pointing out photographs which may not have come within the scope of these individual lectures, at the same time taking a general *resumé* of the collection.

You will not of course expect me to attempt to reconcile the various opinions of the different lecturers, for it is no part of the scheme of the committee to possess the luxury of having opinions or convictions.* Indeed, committees generally very seldom are troubled with either. We do, indeed, profess to have a conscience, but our funds, although by no means in a bad state, are not yet sufficiently overflowing to allow us to have opinions and convictions. The consequence is, that every gentleman who is kind enough to offer us his services is quite free to express his own individual opinion; and you must not, therefore, be surprised when you hear two different dicta on two different evenings, and those even upon the chief object of our Association, viz., the use of photography architecturally considered. Thus my friend Mr. Pullan suggested that an architect should travel about with a pistolgraph (whatever that may be), and bag his sixty pieces of detail per day. Mr. Lamb, on the other hand, tells us,—"If the student acquires the art of the manipulation (of photography), that a more important branch of the art (of architecture) will be neglected,"—"and that photography is but too often substituted for sketching." Now my own conviction differs from that of both these gentlemen; and if I may be allowed to add a third opinion to the other two, I should suggest that both photography and sketching are but too often substituted for drawings measured on a ladder, and plotted at the foot of it. Of course it is very fatiguing, first to hunt up a ladder, then to help raise it, and afterwards to be jumping up and down it all day long; besides, one gets very dirty, and there is very little work to show at the end of the day; whereas, you might bag (to use Mr. Pullan's expression) your three sketches at the very least (I have heard of a dozen having been done before breakfast). Again, how much more satisfactory it is to be able to show your twenty or thirty negatives as the result of your day's labour, although it be *but* a negative result. However, there is this consolation—that the measurer will know all the ins and outs of the building,—why this detail is treated in a particular manner, and why that method of construction was employed; while the sketcher will simply have an idea that such and such elements form a picturesque group, although he will probably be quite ignorant of the construction which determines the form of such elements and the necessity for their peculiar grouping. As to the photographer, poor fellow! the extent of his knowledge will probably be, that under certain circumstances the honey process is the best, and that under others the collodion answers better.

Indeed, the sum of my advice to my fellow students would be,—Measure much, sketch little, and, above all, keep your fingers out of chemicals. If you want photographs, and very useful things they are by the way, go and buy them where you can get them best and cheapest,—at the present Association, for instance, which is established for this very purpose. But all the photographs in the world won't make you an architect, and I am only too glad of it; for if it were otherwise, it is evident that the wealthiest man, who already enjoys too many advantages in the opportunities of leisure, of travelling, &c., which are denied to his less favoured *confrère*, would be the best architect. If at any day, and I hope that day may come, we have a national architecture, and all practice in one style, as in the days of old, the grammar of the art will be taught in the architect's office (where, by the way, not much is taught now), in the stone-yard, and the carpenter's shop. Hence, I say, we shall all, rich or poor, start fair, and men will be able to direct their attention to composition, and expressing their thoughts in stone, instead of passing their lives in trying to master the details and principles of half a dozen different styles,—all of which, being intended for different climates and conditions of society, are at variance with each other.

The latter condition, however, being our lot at present, the committee have endeavoured to afford a choice of photographs which may be useful to those practising in almost every style under the sun. Thus, if any gentleman has a penchant for Hindoo architecture, he will find some most excellent studies by Dr. Murray and Captain Dixon. Should he, however, think the Egyptian a particularly neat style, and especially fitted to the exigencies of our climate and of our building materials, he can choose from thirty-one capital photographs by Mr. Frith, which have, moreover, the advantage of having been illustrated by a lecture by Mr. Bonomi, who has pointed out in the clearest manner the ages of the different capitals, so that our architect may be saved the anachronism of putting, in the same shop-front, a column of the time of Sesostris supporting an entablature of the date of the Ptolemies.

Again, he may range through the Roman edifices illustrated by Macpherson, the Venetian Gothic by Ponti; the wonderful French work of the thirteenth century by Baldus; and, lastly, a very large collection of the buildings erected in our own country by Fenton, Bedford, Dolomore and Bullock, Thompson, and others. To the amateur the collection is particularly valuable, as it enables him to grasp the various characteristics of the different styles without wading through an immense mass of books and plates, the latter being but too often incorrect and worthless. As to the architect, I am not quite sure whether much knowledge of this kind is very desirable. His business is to act, not to talk; and I very much question whether he will gain much good by studying other styles than the one he practises in. I am, however, certain of one thing, viz., that the time would be much better spent in making himself acquainted with the figure, and that until he has mastered it, and undergone a long course of measuring from the buildings of his own style, he had much better lay aside the intricacies of the Indian, Egyptian, and Arabic styles, as well as the various theories of what Sir Edward Lytton Bulwer calls the Ideal and the Beautiful. In fine, let us adhere to one style, and perfectly master it by dissection; for measurement is to the architect what dissection is to the medical man. You may possibly manage to rub on without it, but in that case I do not see that you can ever claim to take the higher ranks.

I will now go very shortly through the photographs, making a very few observations upon each batch. I shall have, however, to jump from one number to another, as the arrangement has been dictated by the exigencies of the room, and not by the chronological order.

The first I shall notice are the Egyptian photographs, which, as I said before, have been admirably illustrated by Mr. Bonomi. It is true that, both from its style and its material, this architecture is utterly unsuited to our climate, yet we may obtain hints as to the treatment of low reliefs from it, while the colour (of course not shown on the photographs) is particularly deserving of our study. The Egyptian stone being, for the most part, very hard, the artist therefore sank the figures from the surface, and thereby saved an immense deal of labour, while the contour of the column was not injured by the figures projecting, as it is in the Renaissance work. Again in that luminous climate where there would always be some shadow either thrown directly by the sun or by reflection, the figures being thus sunk in by a sharp edge would always be well defined, or, as it were, black-lined at all periods of the day. Again the relief sculpture, however low, was always kept flat and square, and we shall see this obtain in nearly all the best archi-

* It is as well to mention that Mr. Burges himself forms one of the committee.—ED.

tectural sculpture in all ages of the world. The difference between us and the Egyptians in this respect is just this, that we are obliged to bring the figures more forward in order to get the proper effect, our climate being so much more obscure. As there was little variation in Egyptian art, and as the son was obliged to follow his father's profession, the figures were drawn according to certain recognised proportions, and with certain peculiarities. Thus M. Durand, of Chartres, showed me tracings of Egyptian heads in profile where the section of the upper lip was drawn like a cyma recta or a reversed S. This it is true is a manifest exaggeration, but doubtless it gave great clearness and distinctness to the mouth when viewed from a distance.

Altogether the Egyptian was a wonderful man, whether we regard him in the light of an architect, an engineer, an astronomer, or a lawgiver. He evidently reached a high state of civilization quite as high as our own, considering the difference of climate, for the warm sun of Egypt would render many of our discoveries perfectly useless. On the other hand, we have no less an authority than the Right Hon. Benjamin Disraeli, who tells us that we mistake comfort for civilization. In the present case we may very well abstract the comfort, but we shall find that every Egyptian shaved his head, and wore a wig, exactly as we did in the last century; while the discoveries in the tombs show us that he was quite up in the abominable art of graining one wood to make it look like another. After this, who can deny his civilization?

The next batch of photographs comes from India. As Mr. Fergusson's lecture upon them has not been published, and as I had not the pleasure of hearing it, I must plead guilty to knowing very little about the subject. They are, of course, very interesting in showing a particular phase of the architectural mind, but beyond that I can scarcely imagine that we should be able to derive many hints from the study of, at least, the Pagan portion of them, and the sculptures, like those of our own St. Paul's, to which I shall presently allude, would appear to be examples rather of what we should avoid than of what we should follow. At the same time a great deal is to be learnt from the work of the Mohammedan period, where the exquisite traceries of the windows and balconies, as in 165 and 170, put to shame our western efforts in the same direction. See the traceried window, *i.e.* a window all tracery, from the Church of Santiago, at Bilboa, 114.

We should not, however, pass over the Pagan sculpture of the Horse-court at Seringham, 454, where rearing horses and their riders, together with wild beasts, trampled under foot, are used as caryatides. There is here a very valuable suggestion for a similar court, say to a palace, only we must use better art.

I must pass over Greek art, for I am very sorry to say that it is very inadequately represented this year: in fact, beyond one or two very small views in the Carthage collection, we have literally nothing of it at all. Our secretary can probably tell you, although I cannot, why there are photographs of the finest sculptures in the world (viz. the Elgin marbles), at the exhibition in Pall-mall, and why there are none here, where they would be so useful, and are so much wanted. For the principles of Grecian and Mediæval sculpture are the same, and one illustrates and teaches the other. This is remarkably the case in the prephidian art.

In the Acropolis at Athens there is preserved a bas-relief of a female figure in a chariot, which, but for the costume, might easily have been taken for the work of the twelfth century; while there are, I believe, some French antiquaries who have been bold enough to assert that the lions over the gate at Mycenæ are really Mediæval beasts, and not Classical.

The photographs from Carthage, as they consist simply of cisterns and aqueducts, do not throw very great light upon the architecture, and simply prove that the Carthaginians must have been very thirsty souls.

Among the subjects which have been left from former years will be found several of Roman sculpture and Roman architecture, by my friend Mr. Macpherson—I had almost said our friend, for almost every one who visits Rome experiences his courtesy and kindness. The architecture consists of the usual stock subjects which persecute the student all the while he is in Rome, and, I may add, for years afterwards: for instance, the temple at Tivoli, which is always turning up, either in the shape of an inkstand, or on a mosaic, or painted on a table-top.

However, no Christian can look without interest upon the Arch of Titus (515), with its sculptures, showing the golden candlestick and other instruments of Jewish worship; while the house of Rienzi (517), the man with a strong cause and a weak head, will be equally welcome to the historical student, even if it be only to bind up with his Gibbon, who, by the way, was the reverse of Rienzi, having a strong head and a weak cause.

The two subjects, 509, St. Maria at Toscanella, and 511, Cloister of St. Paul without the Walls at Rome, belong to Mediæval art; but are due to the same photographer, and display most charming examples of Mediæval Italian. The Roman, or rather Greco-Roman sculptures, of course will not do after the Elgin Marbles; still they are reminiscences of the pleasant hours one has passed years ago in the Vatican or in the Studii, to say nothing of the weary days one may have plodded over them at the drawing-school. Let us take them, therefore, as remembrances, but carefully avoid studying them.

Mr. Macpherson also presents us with a photograph of a fresco by Perugino, which, if it be from the fresco itself, has come out remarkably well. It is greatly indeed to be regretted that there are not more photographs of frescoes and stained glass. I am perfectly aware that they are both very difficult to do, more especially the latter, where every thing depends upon the colour; still, although the photographs might come out baldly, yet we might obtain some valuable information as to the size of the pieces of glass, the thickness of the enamelled lines, the direction of the lead, and the distance of the saddle bars, which at present we can only secure by drawing and measurement. As to frescoes, they are much easier, and most people will remember those of Orcagna's "Last Judgment," in the Campo Santo at Pisa, published a year or two ago. No drawings can possibly equal the photographs for fidelity, the only objection being their well-known property to fade after the lapse of some years. Whether this will ever be got over is a question for science, not for art.

We now come to the great school of Mediæval architecture, which may, for the present object, be divided into two parts, viz.,—the French school, and that of our own country. The other schools are either not represented at all in the present collection, or are very imperfectly so, as in the case of Italy. To begin with the French, which has been the subject of a late lecture by Mr. Pullan. If I were asked which I considered the most imposing piece of architecture in this collection, I should certainly (putting aside, for the moment, the west front of Rheims) say that it was the west front of the cathedral of Angoulême; and after that the west front of Notre Dame de Poitiers. In them we see the great desideratum in the simultaneous employment of sculpture and architecture, and not mere foliage, which, by the way, it is very easy to pour over a building; but as to figures, histories, or, in other words, *thoughts*, you cannot insert them by the dozen in the contract, or describe them in the specification.

Now, the west front of Rheims is all sculpture, and very little architecture; but at Angoulême there is as much of the one as of the other, everything being balanced and in its proper place.

The Greek temple was the same; for although the sculpture was confined to the frieze and pediment, yet the histories and figures were carried down to the ground by means of the paintings on the walls of the cella.

In the present day, owing to the prejudices of the public, and to our own faulty education, we make buildings all architecture, and with no figure sculpture. It strikes me, however,—and I have every reason to believe that my opinions are fully shared by the rising generation of architects,—that we shall never have good art until the mouldings and foliage in a building are reduced to a minimum, and the figure sculpture and mass of constructional material advanced to a maximum. But, to return to Angoulême, one very curious feature is the presence of those long high arches which run up to the eaves of the building, and which, when they are badly treated, take off so terribly from its scale, more especially when they are filled up with ugly Perpendicular windows, as at Tewkesbury and Lincoln. At Florence and at Pisa, where they equally occur, the field is occupied by panelling or stripes of different coloured marble; and thus the requisite amount of decoration and scale is obtained. In England they were perhaps pierced with windows, or they may even have been treated as at Angoulême, where they are occupied by a succession of groups of figures. In this edifice the central arch, which is much wider than the others, goes right up into the pediment; but then it projects but very little and the sculpture stands nearly as forward and thus prevents the arch catching the eye as a feature by itself. In Eastern work, however,—and you can see it in some of the Indian photographs—this arch is deeply recessed, and, to my idea, destroys the scale, and consequently the good effect of the whole building.

Again, at Poitiers, see how all the figures are contained in strong, massive, although very richly decorated, arcades; how the figures in the spandrils stand out, until they are on the same level as the edge of the label, and are not sunk into and taken out of the spandril stone. Again, look at No. 23, the cloisters of St. Trophime, at Arles: how richly sculptured it is, and with what a variety of subjects, and how suitable it would be for a palace or nobleman's mansion, if it were glazed. See how the deeds of worthies long ago dead, but whose remembrance liveth ever, might be carved here. Fancy a cloister thus sculptured with the deeds of good kings (*i.e.*, as many as could be found), while the lesser parts, such as the corbels, the bases, &c., might contain subjects, say the Fables of Æsop, bearing upon the great figures carved above. Such a gallery or passage would certainly be worth a dozen of those comfortable-looking thoroughfares, papered with flock paper, furnished with buhl cabinets and tables, and ornamented with doubtful full-length portraits, which are lighted by a sickly skylight of ground-glass. But I must confess that I do not think the public are altogether to blame for this latter state of things: the architect should, I think, take his share of the odium: it is so much easier to draw the regular passage, and then to hand it over to our friend the upholsterer, to work his will upon as regards the furnishing, than it is to think out subjects, to read up histories, and, lastly, to make designs for the sculptor.

The worst is, that one does not get paid more if one does so; but that is an evil which will right itself. Let only the movement be begun, and after a time it will become fashionable, and the architect will of course be properly paid, as his services become more in demand. The only difference will be, that he will have to be paid the same sum for doing one work well, as he now is for doing a dozen indifferently.

Mr. Pullan and Mr. Seddon have so well described the doorway at Moissac, that there is no need for me to say anything about it, beyond that I confess I do not admire the very thin columns, and the equally thin archivolts, which are in fact a continuation of the column. A column ought certainly to support something heavier than itself, and where it does not, it always appears deficient in energy, and as if it had no work to do.

One of the most beautiful photographs is that of the doorway of St. John the Baptist at Rouen. Every detail is most exquisite, and when it was coloured, as it certainly was, for the gold background remains, it must have been most wonderful; and we can certainly not thank the Cardinal d'Amboise for replacing the centre doorway (which was in all probability of similar workmanship) by his own late work, rich though it be like the finest point lace.

The sculpture of this St. John Baptist door is what we should try to work up to: it has all the vigour of the Romanesque without any of its stiffness. To do this we should study the Romanesque first of all, and then add the superior knowledge of the figure as known in our days. How successfully old work may be imitated we may see in No. 68, representing the lower part of the tympanum of the central door of Notre Dame at Paris, which was ruthlessly destroyed by one Sufflot, a pagan of the last century. So well imitated, or rather composed, in imitation of thirteenth century work is this, that it is very difficult, if you are not acquainted with the circumstance, to distinguish it from the ancient work. This, however, is not what I conceive to be wanted. We must take the old work of the best period, learn from it, and then use it in our own way. It is very possible that we may have to copy for some years, but, when once we have settled down to take one particular style as our *point de départ*, we shall not copy much longer. At present we all seem agreed that the thirteenth century is the best to start from, but we shall never get on until we work solely in this one style, and introduce sculpture wherever we possibly can. But I do not very clearly see how this is to be attained when one man builds an Egyptian villa, and another something in the Arabian style, while another has a predilection for Late German Gothic and its stump tracery, and a fourth goes in for Sir Christopher Wren and what is called the City style.

There are very many other charming French photographs; for instance, the portails of Char-

tres and Rheims; but as they are well known and have often been described, it is hardly worth taking up your time by saying more about them. I would point out simply No. 61, the pavilion above the staircase of Louis XII. at Blois, which is historically interesting as having been the room where the bodies of the Duke of Guise and his brother the Cardinal of Lorraine were burnt after their assassinations. Of course, the roof did not come over the parapet in former times. The other staircase at Blois which Francis I. built is equally worthy of notice; and although it has been in a great measure restored, it has been well restored, which is saying a good deal in these days.

The last part of my subject relates to the photographs illustrating the architecture of our own country. Of these there is a very large show; although, as a general rule, the sizes are not so large as those of the French. As I before said, the English photographs are very numerous, and I will therefore go through them as they are numbered, and not chronologically.

Mr. Barnes and Mr. Nichols lead off with photographs of that wonderfully over-praised building King's College, Cambridge, which can hardly be placed before the architect as an example to be studied: the glass is good of its kind, so are the Renaissance west stalls and screen, while the roof is a pretty puzzle in stone-cutting: all the rest of the building is, however, positively bad, as far as I can judge. Mr. Delamotte illustrates the charming chapel of St. Joseph, at Glastonbury; Tewkesbury Abbey; Shiffnal Church, Shropshire; and Winchester Cathedral; while Mr. Annan gives the antiquities of Iona, including the very beautiful crosses. These latter one would certainly like to have seen photographed to a much larger scale.

Mr. Fenton contributes no less than seventeen views of Furness Abbey, but even these are open to the objection of not being to a sufficiently large scale for architectural purposes. He also presents us with five views of Southwell Minster. No. 224, is Harewood House, another illustration, if it were wanted, of how very unfitted Italian architecture is for our climate. Here you ascend to the front door by a long, double flight of steps, so that if a shower of rain came on, you must either get wetted in going up the said steps, or sneak in through the kitchen office on the ground-floor.

Mr. Bedford next presents us with a choice of forty-one subjects of the most varied description. He begins with the west end of Salisbury Cathedral, which still retains some few of its figures. The next subject is part of the excavations of Wroxeter, showing the hypocaust which the country people were allowed to remove, and which has since been put together as best may be. Bristol Cathedral follows, and is principally noticeable for 232, 233. 232 is a photograph of sundry tracery panel-heads; and 233 shows sundry miscreries, with carved subjects of the most curious description. No. 1 is a man fighting two animals, who are armed with shields. He is evidently the Van Amburgh of his day. No. 2 is a mock tournament between a man seated on a hog and a woman on a cock. These mock tournaments would have appeared to have taken place occasionally: witness the Tottenham tournament in the Percy ballads. Another represents Sampson and the lion,—a very common subject. Sampson wears the jaw-bone of the ass in his girdle, as he would a dagger. Adam and Eve occur in the last.

Now these two photographs just show the relative interest of mason's work and sculpture. The tracery panels we pass over at a glance; the carved miscreries arrest our attention until we have mastered the subjects.

234 is the tower of Mary Redcliffe. It certainly looks in a very decayed state, and yet one is half unwilling to see it restored. Could not one of the indurating processes be tried here with advantage? The tower could then be restored if the process should fail. 235 is the beautiful north porch, lately restored by my talented and amiable *confrère*, Mr. Godwin. I would only venture to suggest to that gentleman that he should not allow the citizens of Bristol to stop short in their work, but that he should insist upon their allowing him to put up the statues which are so necessary for the due effect of this piece of architecture. At all events, he might perhaps persuade them to put one or two up to try, and then the rest would follow.

The committee of the Architectural Photographic Association have not only supplied their subscribers with photographs of examples of what to study, but have also kindly furnished them with what to avoid. Thus, fourteen subjects are taken from the details of St. Paul's Cathedral, London, and present us with the usual Rococo ornament and sprawling Cupids of the period. In one will be seen two acrobatic individuals of this genus, who have no place to rest their legs on; two other Cupids have therefore kindly glued their heads to the background for this purpose. Where their bodies are it is impossible to say, but it is evident that they have left them behind: let us hope that they may find them again, and that neither may take the wrong one. No. 240 is principally remarkable for a most eccentric mitre, which forms a sort of finial. The ironwork is, however, very good of its kind, and one door is almost Mediæval in treatment. The restoration, or rather decoration, of St. Paul's, is now occupying rather a prominent place in ecclesiological circles; but I think it will puzzle even the very clever architect who has charge of it to make a good job of his work. Some of the architecture, such as the side arches under the dome, is very bad, and the dropping of the apse windows below those of the clerestory is another fatal mistake. As it is, I am not quite sure but that the best thing would be to chisel off all the projections, mouldings, foliage, &c., everything, in fact, from the interior, and then to cover it all over with painting, or, better still, mosaic on a gold ground, like St. Mark's, at Venice; the piers and walls below the windows being plated with precious marbles.

The exterior might be refaced with new ashlar, and the upper story taken down, so as to show the flowing buttresses; while the sham lead dome being destroyed, the brick cone would be decorated like the dome at Chiaravalle, near Milan, which Mr. Fergusson, with great reason, I think, supposes to have been the type of the original design for the dome at Florence. I am afraid, however, that both these suggestions are rather too sweeping ever to be carried out, at all events in the present age, and that Mr. Penrose will have a much more difficult task, having to deal with the present architecture, and still worse, with very slender means of carrying out his ideas. However, for a wonder, the right man, in this case, is in the right place, and I for one wish him God speed and every success.

I should not omit to mention that the committee very mercifully tell us in the catalogue that the St. Paul's series will not be offered again to the subscribers.

But to continue, Mr. Bedford in No. 251, gives us the best west front we have in England, viz., that of Wells; the doorway is certainly too small, but putting that aside I really do not know anything more glorious than this façade, at all events that part of it which is original; but what would it be without the sculpture? No. 253 the north porch is a most beautiful piece of pure architecture, being different columns variously grouped and supporting arcades. If we look at No. 262, the west doorways of Exeter, we shall see how much less architectural the sculpture had become. The architecture, by the way, is not much better, as it is a mere screen tacked on to the building, where, as at Wells, all is homogeneous. No. 266 shows the Minstrels' Gallery, where the figures are very bad and the crockets, pinnacles, and tracery very rampant and overpowering.

I must very slightly allude to the views of Ely Cathedral, and the new Museum at Oxford, by Messrs. Dolamore & Bullock. The latter edifice is particularly interesting from the details of the foliage where natural types have been most successfully introduced. These are excellent for a museum, where the originals are kept dried and are the subjects of lectures, but I confess I should like to see something more conventional in a church.

Captain Austin gives us a very valuable series of views from the best of all our cathedrals, viz., Canterbury. In fact, there is hardly any part of this cathedral which might not be studied with advantage, always, of course, excepting the Perpendicular parts. Mr. Thompson, likewise, has several photographs of the same cathedral, so that Canterbury would appear to be well illustrated.

Time will not allow me to do more than simply name the views of Glasgow Cathedral, Lincoln Minster, Beaulieu Abbey, Exeter, Carlisle, and Holyrood. I would, however, suggest to the illustrators of English architecture and sculpture the expediency of doing their works very much larger, so that they may be more useful to study from. As it is, they form capital illustrations of the buildings for the amateur, but they are not large enough for the architect. I hope next year we may see some of our English sculpture from Wells, Salisbury, and Lincoln, as largely illustrated as the French examples are. It will all help on the good time; and although that good time will not be in our day, we ought and must do our best to forward it.

WILLIAM BURGES.

THEATRE PLANNING.

THE JURY'S REPORT ON THE DESIGNS FOR THE PARIS OPERA-HOUSE.

THE formal report of the jury on the designs submitted has been published. It does not afford much information tending to modify views which we have expressed. Mr. Hittorff was the reporter,—the jury being composed of members of the *Académie des Beaux Arts*, and members of the *Conseil Général des Bâtiments Civils*, with the Minister of State, Count Walewski, as president. The report, after preliminary observations, and specifying in each case particular merits of the designs selected, sets forth what were, in the opinion of the jury, some deficiencies in the designs generally. In the course of these latter remarks, it says that the sections of the premiated designs allow favourable results in the future more developed studies to be anticipated, and that "nearly all the competitors adopted, for the *salle*, the form, so fine and monumental, of the ancient opera." This form is very different to that of either of the London opera-houses, being (omitting the *balcon*) as nearly as possible three parts of a circle, with the addition of the splayed lines of the proscenium boxes,—the stage advancing hardly at all into the body of the house. This choice, the jury say, has appeared to them judicious, from the suitableness of the model; and, "at the same time, a just homage rendered to the man of genius who created it. It is, in effect, a fine type of our architecture: it merited to be preserved in a monument destined for a kind of *spectacle* which is itself a national creation to which are attached so many names glorious for France." Could we think that French architects had reached no further in the aptitude for answering progressing demands, at least of convenience and structure, than the position at which were the architects of the last century, or beginning of this; or could we appreciate the possibility of preserving associations whilst the question is of a new building, and one in connection with which there are other and more forcible considerations, we might be less inclined than we are to wonder at words which are so little in character with all that is at present exhibited in architectural progress, or through discussion in Paris on the subject of the projected building. We do not inquire whether the *salle* of the buildings in the Rue Lepelletier, completed in the year 1821 by the architect Debret, is, indeed, a reproduction of that of the opera-house, by the architect Victor Louis, in the Rue de Richelieu, which was inaugurated in 1794, and whether even that building was one which the jury can associate specially with names of dramatists which they give, starting with those of the seventeenth century. But we are not surprised after the error at the outset, to find that the jury, in looking at the designs, have not, as they confess in concluding the report, stopped to consider the questions of lighting, heating, ventilation, and acoustics, and improvements to be introduced in the disposition of decorations and machinery. They name all these, and "comprehend the interest" of such researches indeed; whilst they state that "the designs in which those questions were particularly treated, did not respond sufficiently to the just exigencies of the art." They ought, however, to have recognized prominently that the result of the effort to solve the question of theatre-planning as by the architect Louis in 1780 in the theatre at Bordeaux, or the Théâtre Français in 1790, is far beneath that demanded at this juncture; or that the real question and difficulty is one, of plan and section, in regard to which the best theatre or opera-house in Europe, to serve as a model, may be justly regarded as insufficient. There is one reputed merit in the present house to which they do not allude, namely, the sonority. This has been attributed to the construction adopted in a building intended to be only temporary.

It would have been impossible, however, for the distinguished men whose names we gave in a former notice as having composed the jury, to be quite unmindful of defects and merits in the designs. They direct attention to a want of provision of entrances under cover, of adequate staircases to the upper tiers of boxes, and of required space for the stage, and the offices of the administration; and they incline to the opinion that the ground was insufficient. In the point of external decorative character, they recognize amongst the designs, works which evidence abundant imagination and talent, but not generally the grandeur and expression involved in the idea of an opera-house. The advanced porticoes forming terraces, in many of the designs, they think ought to be avoided as concealing a considerable portion of the

façades. The absence of unity in designs where the divisions, the *salle*, the stage, and the offices of the administration, appear like three buildings, they characterize as a great defect.

In the work of adjudication, the jury first had brought before them the designs in the order of their numbers: they set aside forty-three by majorities of votes; they then reduced the number to sixteen; after considerable discussion they made a further reduction to seven; and they then came to the conclusion that the first reward offered, the execution of a design, should not be given, and that the money premiums should be allotted in the amounts we have already mentioned. The minister at the last meeting expressed the hope that one of the designs might be found to merit the first reward as originally offered: a new examination was therefore made; and ultimately the vote taken by ballot brought the question to the result stated. According to the report, the design by Mr. Ginain has a very ingenious and novel disposition of the plans, particularly the plan of the first story or tier, large and facile communications, and a general *ordonnance* allowing of monumental façades on all sides. In the design by Messrs. Crépinet and Botrel, the plans are well studied, and the external character answers best to the idea of an opera-house. This design had a front semicircular on plan, with a slight central projection. The design by Mr. Garnaud is named for the grandeur of the distributions of the vestibules, staircases, and saloons, and as regards the upper part of the façades expressing well the character of a theatre; the design by Mr. Duc for the arrangement of the staircases and vestibules, and the study of the requirements of the stage; and that by Mr. Garnier for analogous qualities. The report terminates with the recommendation that a new competition should take place between the authors of the five designs, the reward being the execution of the work.

It is difficult to see that the question has been much advanced. If second competitions be necessary, as deemed to be so frequently on this side the Channel, the step betokens that there has been some mismanagement of the first: whilst alterations made in designs are not necessarily improvements. What is required for this particular case, and for that improvement in theatre-planning towards the necessity of which,—whether in regard to the exits and entrances, and staircases, or the comfort of the audience and a good view of the stage from all parts of the house,—this journal has been so long calling attention, is, besides the study of the points which the jury so lightly treated, the study by architects, of all that relates to the *stage*, and its scenery and contrivances. We said lately that persons acquainted with the management of theatres should be consulted; but it is still possible these persons may be prejudiced in favour of an arrangement of the scenery which leads to forms of plan,—one involving many bad side-places, as in this country,—and the other, bad places, or none at all, in what corresponds to our gallery. In the English theatres, though the gallery is far from the stage, the chandelier is not always an obstruction to the view: in the French theatres, the dimension which is given in height rather than in distance from the stage on plan, makes the chandelier (which descends low) a complete impediment; whilst the atmosphere in all upper regions is still more pernicious than with us. We leave this question of some approach to the arrangement in plan and section of the ancient theatre quite open: there is too much involved, of acoustics, and of the difficult matter of income from places, to do more than say that the form on plan and the *balcon* of the French theatres constitute an approach to it. The managers of theatres in France would perhaps say they could not afford to dispense with seats at the top of the house. The policy of such provision, however, may be questioned, seeing that the seats are not sufficiently occupied; the cost of the additional height might be otherwise applied with advantage for the income, and a reduced height in proportion to area would be better for effect; and whilst the gallery opening into the *salle* might be more skilfully contrived than generally it is in our theatres, space above the "foyer" or saloon of the boxes may be utilized as it is in the arrangement of which Covent Garden Theatre presents perhaps the best example. The Théâtre Lyrique, shortly to be removed, presents some approach to this disposition.

We say, that whilst the managers of theatres should be consulted by architects, it is possible that better means of attaining the objects could be devised than those which are now in use. It is clear that, by the disposition of the stage and scenery, and the large proportion of places in the house which have not a front view, much of the interest of the spectacle is lost. Would it be possible to substitute for such a form as that of the *salle* of the Opera-house in the Haymarket, the nearer approach to that of the ancient theatre which is to be observed in the theatres of Paris, and at the same time to advance the centre portion of the stage to occupy nearly the position of the ancient orchestra, the opening of the scene being at the same time largely increased? The scenery would then be arranged in all cases, as it is now exceptionally in what are called *set-scenes*, with the sides splayed or oblique; whilst the increased breadth would give space for the same number of actors. Such an arrangement could be made with the greatest facility in the French theatre, where scenes are not changed in the same act. There are many points indeed to be considered to complete the study of the question, such as the slope of the stage, and the place for the musicians. But we are disposed to think they could be solved. It is to the interest of managers to give all the information they can, and to overcome some prejudices.

Since our observations on the points of ventilation and lighting were written, Mr. Trélat has addressed an audience, at the institution in the Rue de la Paix,—newly formed on what is called the English model, for lectures and analogous objects,—on the general subject of the architecture of theatres and the proposed new Opera-house. Whilst strongly advocating the importance of re-opening the whole question of plan, in place of leaving it as it is on the model of the Italian theatres, or the authority of the architect Louis, he urged the futility of any attempt to find a model in the Greek or Roman theatre, which was planned for a drama and spectacle essentially different from our own. Nevertheless, attaching every importance to that which is so obvious, we do not see the necessity of coming to his entire conclusions. The model of the ancient theatre was badly used by some of the competitors in the recent case: but the form being admirably well adapted to the objects, as *spectacle* then was, whilst the present form is not in corresponding manner adapted, the question is whether any useful hint has been left unutilized. The object is to provide as much as possible, places with a front view of the stage; and this would prevent a copy of the concentric rows of benches, or so far as depth at all in the stage be necessary, as of course it is. But regarding the preliminary assertion of principle of so utilizing a given area of ground, as by diminishing the number of side-boxes or seats, and increasing the opening of the proscenium or curtain, conclusions would be the same; and the problem is to plan the *salle* and the stage, thus starting, with reference to one another, and so to light and construct the house that everything shall be seen and heard at the most distant benches, and those possibly more distant than those of the French theatres. The question of acoustics is perhaps the greatest difficulty: most existing theatres are very defective in that respect; but that the object might be attained even in larger buildings than there are in Paris or London, seems to be shown by what is known of the ancient theatre, as also by what is experienced in the theatres of Italy of the largest dimensions.

THE SARACENIC STYLE DISTINCT FROM THE BYZANTINE.*

THE various styles of architecture have their history; and their rise and progress are as necessary an inquiry, in studying their development, as are their peculiarities of character when arrived at full maturity. They are sometimes treated as if each were a distinct creation of its inventors, independent of any elements derived from an earlier source; and we hear of the origin of the several styles as if they had been autochthonous in their respective countries, and the offspring of the native mind, unaided by any foreign or adventitious influences. But few—I might perhaps say none—of the various styles of architecture so originated; for I do not include under that head the primitive efforts of man when in an untutored and barbarous state; and, though man at first supplies his wants by the humble dwelling required as a shelter, and erects some religious emblem or sacred enclosure to his God, no sooner is he sufficiently advanced to give to his building an architectural character, than he is open to receive impressions from more civilized people with whom he comes in contact. No architecture, therefore, reaches its full development without being indebted to one or more older styles. It is true each has its distinguishing types, which give to it a particular character; but much is always superadded to its original elements; and even the Egyptian, though apparently so very distinct and peculiar, is not an exception to this general rule.

It is sometimes difficult, in tracing the progress of Egyptian architecture, to ascertain how much was added to it from other styles, since no monuments older than or even as old as those of Egypt remain; but it is evident that foreign elements were admitted into it, and many details introduced at various periods are found not to bear the stamp of native origin. In the sacred edifices, however, the character of the architecture was essentially Egyptian, though it varied much at different periods, particularly between the fourth and nineteenth dynasties; and it is in the highly-decorated tombs that a new style of architecture and of ornament is most discernible. These tombs admitted of great variety, and thus the semicircular or round arch, unknown in the temple,* was there introduced, constructed of brick or of stone, or represented in the hewn rock. Indeed, we even find the form of the pointed arch there used in this imitative and conventional manner.

Both these arches were invented in a country where the problem of covering large spaces with bricks had to be solved; and the two brick-making districts where they were first employed were unquestionably Egypt and Assyria. And though, from our knowledge that the round arch† was commonly used in Egypt as early as 1500 B.C., and probably more than 500 years before that period in the brick pyramids of Memphis, we may conclude that it was an Egyptian invention; still, I believe the pointed arch to have been invented in Assyria, and to have been imitated from that country in a hypogeum at Thebes, which dates about 1460 B.C.; for there is no evidence of the existence of a *constructed* pointed arch in the valley of the Nile until long after its round, or semicircular, companion had been commonly used; and the oldest pointed arch now known there forms the roof of one of the chapels, or sanctuaries, attached to a pyramid at Gebel Berkel, the site of Napata, the old capital of Ethiopia; which, though built by a native architect, appears to date during the early part of the Roman empire. It is constructed with the keystone, and the blocks are arranged lengthways, as were the bricks in the oldest round arches.‡

I must not, however, allow myself to deviate from my principal object; and I only mention these facts connected with the architecture of that most conservative people, the Egyptians, to show how even they borrowed from a predecessor, or from a contemporary; as did the Greeks, in their architecture, their vases, and many of their decorative designs; and as the Etruscans and Romans borrowed from the Greeks. It is in the later periods, when the Romanesque, the Byzantine, the Lombard, the Saracenic, and others, formed themselves out of the elements of those which preceded them, that I wish more particularly to notice the gradual production of new styles of architecture; and of these I shall content myself with the Saracenic, which I am induced to do by having (not indeed without surprise) heard it stated that there is no Saracenic style, and that it is merely Byzantine.

That the Saracenic borrowed from the Byzantine is perfectly true; and this, as I have already observed, is quite in accordance with the history of other styles; but, though any one of them may be originally derived from a predecessor, it is not on that account precluded from assuming a new and independent character, when it has remodelled and adapted those elements it found suitable to its requirements, and has made them its own; and in all cases it may be safely predicated that each new style is derived from more than one parent. The architecture and artistic ornament of ancient Greece are sufficiently decided

* By Sir Gardner Wilkinson, F.R.S., as elsewhere mentioned.

* Except one or two solitary instances of Roman time, in out-of-the-way places, as at the Oases.

† It is common in the brick tombs at Thebes. The oldest stone arches yet discovered are of the time of Psammetichus, about 650 B.C.

‡ It had been unfortunately pulled down before I visited Gebel Berkel in 1849; but a drawing of it was made by the Duke of Northumberland and General Felix, of which I am happy to be able to give a copy. Mr. Hoskins gives it without a keystone, as does Caillaud, but all agree that it was pointed, and not round, like the other arches there and at Meroë. If the stones were not cut to a considerable angle at the joints, they could not be placed together as they are lengthways, to form a pointed arch, unless the arch had a keystone; and the necessity for this member is clearly shown in the Early Pointed arches of Christian time in Egypt, which are constructed on the same principle, with the bricks placed lengthways.

in their character; and yet, if we were to claim from them all they derived from others, we should deprive them of many most essential features, and should prove that we had not observed how this very habit of adoption and adaptation was one of the merits of the Greeks. They perceived the beautiful wherever it presented itself, and they scrupled not to borrow even from the so-called "barbarian," who in early times was as much more advanced in taste than the Greeks, as the Saracens were than the Crusaders who affected to despise them; and it is this very habit of adoption and adaptation which we should do well to practise at the present day, in preference to the too frequent effort to introduce some novelty, from a love of variety or notoriety, or the mistaken notion of *invention* in art.

To deny the existence of a style or architecture because it borrowed from another, is to ignore the very history of architecture. As well might we deny the existence of the Italian school of painting because it owed its first ideas to the Byzantine Greeks, and because the earliest masters of the Florentine, Sienese, and Pisan schools, as Cimabue, Guido, and Giunto, with many others, derived their earliest lessons from those of Constantinople.

Any one who knows how Saracenic architecture commenced, how it advanced, and how it became a distinct style, will admit that it only went through the usual phases of transformation common to others, which have been derived from one or more predecessors, and that it advanced by a very reasonable transition from its first condition of pupilage to a new and independent state. But though the Saracenic was beholden for its origin to a number of progenitors, perhaps in a greater degree than any other style; yet, in some countries, it was actually not indebted to Byzantine influences, *in the usual ratio*, at the time when its first germs were developed. It sometimes merely borrowed certain ornamental details.

At the period of their earliest conquests, when the Arabs advanced into Syria, and captured Damascus, in the summer of 634 A.D., neither their wants nor their taste had aspired to the erection of buildings dignified by beauty of design; and the practice of architecture was still unknown to them. They were only acquainted with a very primitive form of building in their own country; and for some time after they had established themselves in Syria and in Egypt they employed Christian architects, and were not themselves sufficiently acquainted with the arts of construction to erect any large building. As the early Christians adopted the basilica, or in some cases the Pagan temple, the Moslems sometimes adopted the Christian church, or borrowed ideas from their Pagan predecessors; and in many instances the churches of a conquered province, having been relieved of the distinguishing emblems of Christianity, were readily appropriated to the unadorned services of Islam. Indeed, they were sometimes satisfied in obtaining from the Christians half of a church as a place of worship; and the great church of St. John the Baptist, at Damascus, continued to be the joint property of the two religions from the capture of that city, in 634 A.D., to the reign of the Ommiade Caliph Weleéd, A.D. 706; and, though said to have been pulled down and replaced by the present mosque, and to have received the name of Giama-Beni-Ommééh, or El Ammowee, from its supposed Ommiade founder, it evidently was merely altered by him; and the decay of the whitewashed stucco on the exterior of the walls supporting the great dome, with which the scruples of the "Faithful" then covered and concealed the coloured mosaics and their golden ground, reveals here and there the original ornamentation of a Christian time. Moreover, from the appearance of this rectangular building, it is evident that the roof above its pediment was heightened at the time when the dome was superimposed upon it; and that the side and end walls, including the pediments, are of Christian date; so that we at once perceive how much has been introduced by the Moslem architects upon the once continuous line of the roof between the two pediments. Mr. Porter also states that on its inner walls and piers this part was coated with the finest marble, in beautiful patterns; while, on portions of the wall above, and on the interior of the dome, may be seen fragments of fine mosaic, representing palm trees and palaces. There is also a Greek inscription, of Christian time, of which he gives a copy, and which, with the mosaics and its general plan, sufficiently establishes the date of the building. The dome, according to Mr. Porter, is nearly 50 feet in diameter, and above 120 feet in height.

The few mosques erected about that time by the Arabs in Syria were marked by many characteristics of the Christian style, and certain Byzantine features continued to be attached to them in that country; but these were chiefly confined to the cupola and ornamental accessories; and, even then, every new building acquired that variety of feature which, through their extended conquest, was speedily introduced into the architecture of the Arabs. In Egypt, Barbary, and other countries, the same number of Byzantine elements did not find a place, even in the earliest mosques; and this is only consistent with what might be expected, since their style was at first that of each country where they happened to be erected; and we are not, therefore, surprised to find that, in those of the oldest time, the dome is wanting in Egypt and in Barbary, and the principal characteristics of Byzantine architecture are rarely, if ever, to be traced there. Indeed, it was not till a much later period that the dome held an important position in the mosques and tombs of Cairo; and the oldest raised there were those which bore the least affinity to the Byzantine style, as I shall presently have occasion to show. Nor do Saracenic mosques present the most distinguishing features of that architecture. We look in vain for that arrangement so peculiar to it,—of the upright wall, with its row of arches standing over others springing immediately from columns, so well known in Santa Sophia, at Constantinople; in San Vitale, at Ravenna (built also in the time of Justinian, A.D. 534); and in other churches; nor are the bridge-like galleries or columnar screens, so remarkable at St. Mark's, in Venice, met with in any Arab mosque.

These, and other Byzantine features, are as much at variance with the character of a Saracenic building, as would be the triforium of one of our cathedrals; and, while Byzantine churches differ in their character from an Egyptian mosque, what can be more unlike the former than the earliest mosques of Cairo? As, for instance, those of Amr, of Ahmed-Ebn-Tooloon, of El Hákem, built, the first about 642 A.D.; the second, in 879, and the third, in 1003, A.D.; in none of which did the founders introduce the dome, or any of the most marked peculiarities of Constantinople. If we compare their hypæthral rectangular court, and the covered corridors that surround it, with their flat roof, to a Byzantine church, I will venture to say, that no plan or elevation could be found more at variance with them; and the very feature which claims the most-marked relationship to the Byzantine style,—the dome,—was not introduced into the open court till centuries afterwards, or about the end of the year 1200.

Such hypæthral courts, with their surrounding colonnades, bear a much nearer resemblance to those before ancient Egyptian temples; and the area and portico of Luxor, or any other of those marked monuments, might be thought, at first sight, to have a claim to be the prototype of these Moslem courts. Even the colonnades of a Roman forum, and some Roman temples, like that at Zaghwan, near Tunis, or, like those round the courts at Baalbek, with a similar peristylar arrangement,* bear a greater resemblance to those of the mosques than any Byzantine building. In the Arab edifices above mentioned, we see no domical structure, nor any of the peculiarities of Byzantine architecture; and the cupola, or *kobbeh*,† in the area of the mosque of Ahmed-Ebn-Tooloon, was not put up till the reign of the Melek Munsóor-Hesám-e'deen-Lagéen, A.H. 696, in the month of Saffer (answering to A.D. 1297—98), as recorded in the Arabic inscription it bears.

One style may borrow many features from another, without being indebted to it for its origin. Thus, the first idea of the pointed arch may have come to us from the Saracens, with whom it was in common use at least as early as 879 A.D.; and numerous other peculiarities of their architecture may be observed in our so-called Gothic; various Arab characteristics, found in early buildings of France and other parts of Europe, being common in those of Cairo and every Arab city; and the church built by the Crusaders at Beiroot (now converted into a mosque) has the pointed arch decorated with the Norman chevron.‡

But neither these nor St. Anthony's church at Padua, with its minaret-like steeples and its borrowed character, come under the category of the Saracenic style; nor does the introduction of certain peculiarities into architecture suffice to confine it to that particular style from which they were derived. The long sojourn of the Crusaders in the East, and their wars and occasional alliances with the Moslems of Syria and Egypt, will readily account for the introduction of a new feature into European architecture, and the pointed arch,—a very dominant one in our Gothic buildings,—came to us from the Arabs; but the mere introduction of certain forms or peculiarities does not affect the *style* of any architecture, and the manner in which the pointed arch was adapted by the Gothic builders, its bar tracery, so different from the pierced or plate tracery of the Saracens, and the constructive purposes to which it was made subservient in vaulting and in covering large spaces with small materials, gave them a claim to originality in its use, and made it a new element in European architecture. And here we have another of those very remarkable instances of the adoption and adaptation of a feature under new conditions, which prove the genius exhibited in its application, and mark the practical talents of those who develop an idea obtained from a foreign source.

I cannot here enter into the lengthy question of the pointed arch, and I shall only notice its use incidentally as it bears on the present subject; but I may observe that the Early English arch is so distinct in form and treatment from the Norman, that it could not possibly have arisen out of it; and no modification would lead from the former to the latter. The two are totally distinct from each other, and the notion of the intersection of two Norman arches having originated it is opposed to reason as well as to fact. For the pointed part accidentally lying between them is *not an arch*: it is the mere intersection of lines; the only arches there are the two round ones; and no one would construct an arch on that principle, *i. e.* with the arrangement of the stones as they there stand in relation to each other. This supposed pointed arch is no arch at all; and he who would build one in imitation of it would have a strange notion of the principle of a pointed arch. It has no more claim to that name than any round arch seen in perspective, or any accidental intersection of ornamental devices, or the meeting of the boughs of trees, which have indeed been gravely put forward as the origin of this arch. Besides, pointed arches had been used long before the Normans had any intersecting arches, or had even settled in France; and it would indeed be an anachronism to derive them from what was not yet known, especially as they were already common elsewhere at the same period.

The marked change from the Norman, Lombard, and other round, to the pointed arch could only have been owing to the sudden *adoption* of the latter from an *established style*; and, as we know where it was in general use, and that it was found by the Crusaders in the East, and adopted by them in the churches they built there, before it came to Europe, we have no difficulty in determining the source whence it was derived; but though the original idea was borrowed from the Saracens, the Pointed *style* in Europe became a distinct architecture, and claims this merit as the Saracenic claims to be independent of the Byzantine. In examining this point it is well to bear in mind that it is not Syria, but rather Egypt and some other countries, where the Byzantine element was far from dominant, which lay claim to the earliest development of this new style; and the oldest works in Egypt, of known date, are totally at variance with the form, as well as the constructive and other main features, of Byzantine buildings.

The conquest of Egypt began in A.D. 638. Babylon, afterwards called Fostát, and now Old Cairo, was taken by Amr in 639, and Alexandria at the end of 640; and soon afterwards the whole of Egypt fell into the hands of the Arabs. It was at this period, A.D. 642, that the two mosques were first *founded*, which still bear the name of *Giáma-t-Amr*; one near Old Cairo, the other at Asoóan; and the tent of Amr, like those commonly used by the Arabs, of goats' hair, being called *Fostát*, gave its name to the new city which took the place of Egyptian Babylon. The mosque of Amr, therefore, being the first erected by the Arabs in Egypt, or, indeed, in any of the conquered provinces, is of the highest interest in the history of Saracenic architecture. Nothing, however, appears to exist of the original structure; and the only part which dates during the first century of the Hégira is probably a portion of the

* It was found in Herod's temple at Jerusalem, and other buildings; and something of the kind occurs in our cloisters.

† *Kobbeh*, or *Cubbeh*, "a dome," is the origin of the Spanish, Italian, and English words for cupola (cubola), implying a hollow form, like the Arabic *kubai*, a "cup," *kuf*, the "palm of the hand," and the Greek κυβη, κυφος, κυφη, κυπελλον, κυψελη, as well as *capsula*, and our own cup and cap; the Celtic *copan* (*cupan*), &c.

‡ The chevron is the common moulding throughout the Palace of Diocletian, at Spálato. It is also found slightly modified in the mosque of Ahmed Ebn-Tooloon, derived, of course, from a similar Roman source.

exterior wall on the south-eastern side,* which bears the impress of a mode of building common at that period. Indeed, the whole edifice was altered, and apparently rebuilt between the years 642 and 712 A.D., and as at first it measured only about 75 feet in length by 45 in breadth, its plan must have undergone considerable changes ere it reached its present dimensions.

In the reign of Abd-el-Mélek (the son of Merawán I.) great alterations were made by his brother Abd-el-Azées, about A.D. 699; and by Weleed in 712-713; as well as by the Abbaside caliphs; and under Mamoon, the son of Haroone'-Rashéed, its dimensions had increased to about 435 feet in length by 225 feet in breadth.† It was also repaired by Ahmed-ebn-Tooloon, and by his son; by El Hakem-be-Omr-Illáh; by Yoosef-Saláh-e'deen (Saladin); and by others: extensive additions appear also to have been made at the beginning of the year 1400 A.D.; and other repairs date as late as the time of Murad Bey, at the close of the last century.

It has been supposed by some that the arches of the interior, which spring from columns, and form the hypostyle of the Mekkeh end, are a portion of the early building; but this is an error, as they are built against an older wall, and actually cover part of the old windows (since blocked up).

They are not even of the date of the Abbaside caliphs; and their style at once proclaims them to be about the time of Soltán Moáïud, A.D. 1412-1421,—an opinion confirmed by the fact of the mosque having been repaired at the beginning of that century. The windows in the wall itself are of much earlier time; and others, also of early character, form above them an upper tier; but the latter are not visible from the inside, as the roof intervenes between them; and it is only from the outside that they can be seen, together with the whole elevation of the wall, which rises considerably above the present roof.

This upper tier consists of windows having alternately round (inclining to oval) and pent-roof heads; and in some are the remains of the stucco which once held the painted glass with which they were filled, probably by some early restorer of the building, who raised the roof. This upper tier of windows was then added to the lower wall, in which, ranged at intervals, are the clusters of one large central and two small lateral round arches, seen in the interior.

The portion of this south-eastern wall which is at its eastern extremity bears, as I have before stated, strong evidence of being the oldest remaining part of the mosque;‡ and you at once perceive where later repairs have been introduced towards the north, after some dilapidations had occurred on this side; half of an arch being there filled up by the more recent brickwork.§ There, too, an imitation of the older part is sufficiently obvious; and the difference in the construction of the arches in the two portions at once pronounces the later one to be a copy of its older neighbour. They imitate but they do not perfectly resemble the older arches, having their jambs higher, and their heads (especially those of the pent-roof form) less lofty, or of a more obtuse angle; and a difference of construction may also be observed in the wall below. These facts appear to confirm the account given by Macrizi of the manner in which the mosque was enlarged. They also accord with modern tradition; and if the latter* asserts that it was built in imitation of the temple of Mekkeh, this could only have arisen from the notion that its open court was copied from the enclosure of that holy place, as neither the internal arrangement, nor the cubical-shaped sanctuary of the Kábeh, was here adopted. But in fact, the sacred enclosure of Mekkeh and the open court of the mosque of Amr were both later additions; and the former was, in Omar's time, merely surrounded by a low wall of separation, afterwards replaced by the arcades with cupolas then added round its hypæthral court—a form of peristyle said to have been first introduced from Persia,—instead of the simple architrave and flat roof of an earlier time, which last was supported on columns made of the trunks of palm-trees.†

* I call it the south-eastern, though these mosques do not face exactly to the south-east; and the direction of this end in the mosques of Cairo is more to the south than south-east. That of Ebn Tooloon stands about twenty degrees east of south, or seventy degrees south of east.

† The court of the mosque itself is now about 380 feet by 355 feet; and the length of the whole building is about 550 feet by 355 feet. Macrizi, according to Mr. Stanley Poole, states that about 211 A.H. (A.D. 827), the mosque, without the two additions, measured 190 (architect's) cubits in length, and 150 in width.

‡ Through the kindness of my friend Mr. Stanley Poole, who has sent me the detailed account of this mosque by Macrizi and Aboo Saeed-el-Himyeree, I have been enabled here to introduce a correction of the statement I had made that this south-eastern portion belonged to the original structure raised in the time of Amr. I am still inclined to think that the lower part of it dates as early as 93 A.H. (712 A.D.); 1st, because Macrizi speaks of the "niche existing in his day," which had been built by Kurrah, in the reign of Weleed; and 2nd, because it is evidently the oldest part of the mosque. Unfortunately, Macrizi's account is not sufficiently detailed to enable us to ascertain the dates of the several parts added and repaired. I particularly recommend the valuable remarks of Mr. Stanley Poole to all who are interested in "Arabian Architecture," on which he writes so ably; and his authority is of the greatest weight in all matters connected with the history and literature of the Arabs. They are in the appendix to the last (5th) edition of Mr. Lane's Modern Egyptians.

§ The oldest appears to be, first, the lower part of this wall; second, the portion above, with the small windows; and third, the restoration, which may be coeval with the south-west side.

* It is not an idea of Europeans, but of some of the Cairenes themselves; and, though erroneous, it is only right to attribute it to its real authors. Indeed, it is obvious that the Moslems, rather than Europeans, would be desirous of supposing one of these mosques to resemble that of Mekkeh.

† To be continued.

INSTITUTION OF FINE ARTS, PORTLAND GALLERY.

THE fourteenth exhibition of this Association consists of 602 paintings and drawings; and, as a whole, is a more satisfactory collection than that of last year. Their ranks need strengthening. No. 4,—"Woman's Work, a Medley," Florence Claxton,—is a Hogarthian composition, displaying thought, and so deserving it, though it trenches on the region of caricature. No. 28,—"Rydal Water," by George Pettitt; 29,—"Holy Island, Isle of Arran," E. Hayes; 42,—"The Harvest Field," Sidney R. Percy (though too vehement); 66,—"Fishing Boats off Hastings," Alfred W. Williams; 300,—"A Quiet Retreat," by F. W. Hulme, who sends other agreeable contributions; and 420,—"Cadgwith Cove, Cornwall," by J. G. Naish, are some of the best landscapes in the galleries. From amongst the figure pictures we may note 38,—The Gossip," by T. F. Dicksee, who also sends an excellent repeat of "Launce's Lecture," 100; 78,—"Elbow, a Simple Constable," H. J. Marks; 94,—"Rosalind," Mrs. F. Yeames; 273,—a "Spectator" picture, by Arthur H. Weigall (who is making good progress); and W. Gale's "Arab Child," 394 (a repeat?). Mr. Underhill gets more spectral in his colour than ever, yet "Musidora" (142) has claims. Mr. Lauder, Mr. Bell Smith, Mr. Dukes, Mr. Provis, Mr. Peel, Mr. Rossiter, Mr. Webbe, Mr. L. J. Wood, Mr. Horsley, Mr. Parrott, Mr. T. F. Marshall, Mr. C. J. Lewis, and Mr. Herring have pictures of more or less importance. Mr. Calderon's (49) "The Morning of the Resurrection" will scarcely satisfy his admirers.

EXHIBITION OF FRENCH AND FLEMISH PICTURES.

THE eighth exhibition of works, by artists of the French and Flemish schools, collected by Mr. Gambart, is now open in the Gallery, 120, Pall-mall. It consists of 137 pictures, and includes three works by Miss Rosa Bonheur, not calculated to increase her reputation; a picture of very high merit, by Meissonier, entitled "In Confidence" (92); four works by J. L. Gérome (of "The Snow Duel"); and four scenes in humble life, by Edouard Frere, two of which, 49, "Infant School at Dieppe," and 50, "Asylum for Old People at Ecouen," are the most covetable pictures in the room. In the Asylum the old people, sunk in apathy or sleep, are gathered about the stove, a touching group. The School is full of character and story.

The "Comic Story," by Knaus, 69; 87, "Artfulness itself," by P. Levin; Petter's Flowers, 102 and 103; Ruiperez's "Soldiers Playing at Cards," 106; and Trayer's "Embroidery Lesson," 119, deserve attention.

SCULPTURE FOR THE MANSION HOUSE, LONDON.

IN completion of the arrangement for filling up all the fitting spaces in the Egyptian Hall of the Mansion House with sculpture, an admirable determination for which Mr. Bunning has greatly to be thanked, studios were visited some time ago, and fifteen sculptors selected, who were invited to submit statuettes. Five statues were needed, three male, two female, for which about 700*l.* apiece are to be paid, and it was settled that the ten sculptors not employed should receive twelve guineas each towards expenses. In reply to the invitation, the committee received from Mr. Joseph Durham, "Alastor;" Mr. W. B. Stephens, "Alfred the Great;" Mr. Hancock, "Penserosa;" Mr. J. S. Westmacott, "Dryden's Alexander's Feast;" Miss Durant, "Faithful Shepherdess;" Mr. P. McDowell, "Guidirius returning from the Chase;" Mr. Calder Marshall, "Leonidas;" Mr. Lough, "Milton's Comus;" Mr. Theed, "Lavinia;" Mr. Earle, "Harold;" Mr. Weekes, "Cleopatra;" Mr. Noble, "Arthur;" and others by Mr. Thorneycroft, Mr. Doherty, and Mr. Crittenden.

From these the first five have been selected by the committee, namely, those of Messrs. Durham, W. B. Stephens, Hancock, J. S. Westmacott, and Miss Durant. Two of these, the lady's especially, are manifestly very inferior to some of those not selected, as, for example, Mr. McDowell's fine figure, and will need great alteration in the marble to render them in any degree satisfactory works.

A MORAL OF RIFLE PRACTICE.

"RIGHT" is the target's centre: that's the aim!
Yet few there are with mental grasp and eye,
Can let their wit at once unerring fly,
Straight to that mark and gain immortal fame.

"It looks so easy"—so the many say:
"What need of art to guide the senses right,
The inborn genius in its rapid flight?"
They take no pains; but, reckless, blaze away.

Others there are, with lazy self content,
Who ne'er shoot wide, but hover round the true:
'Tis this side, that, with undecided view;
Their small ambition on "an outer" bent.

The marksman's badge whoever wills to wear,
Heedless of pleasure and of fortune's frown,
With well-train'd mind and nerve, scores up renown,—
A feat that all may, self-denying, dare.

W. CAVE THOMAS.

ELECTION OF SUPERINTENDENT ARCHITECT, METROPOLITAN BOARD OF WORKS.

ON Friday, the 15th instant, the Board proceeded to the election of an architect under their Act of Parliament, when twenty-three candidates presented themselves. The list was first reduced to six, by the following voting:—

G. Vulliamy	32	H. B. Richardson	5
Sancton Wood	29	Liddiard	4
R. Kerr	27	T. Goodchild	3
Isaacs	26	T. Morris	2
J. Billing	25	Blore	2
C. Fowler	23	Dixon	1
Saunders	20	T. D. Barry	0
J. Young	20	Cooper	0
F. R. Wilson	15	J. Hansom	0
Hart	12	Kirkland	0
C. Eales	11	Salmon	0
Salter	7		

This, it will be seen, left Messrs. Vulliamy, S. Wood, R. Kerr, J. Billing, Isaacs, and C. Fowler for choice. After various votings, the list being reduced to the names of G. Vulliamy and S. Wood, Mr. Vulliamy was elected, and took his seat.

THE CHAPEL OF ST. MICHEL, PUY DE DOME, FRANCE.

IN Mr. Street's recent papers on the churches of Le Puy and Auvergne, an account was given of the chapel of St. Michel de l'Aiguille, at Le Puy.* To illustrate this we have engraved from that gentleman's sketches an exterior view, showing the entrance; a view of the interior of the nave, looking towards the chancel; and the ground-plan of the curious edifice. It is one of the most remarkably situate of the chapels dedicated to the airiest of saints, being on the peak of an acutely-pointed rock, which rises abruptly to a height of near 300 feet, out of the valley just below the cathedral and city of Le Puy. The steps up to the chapel wind round the rock, in whose side they are cut. The whole building was so fully described in the paper referred to, that it is unnecessary to say much more than this about it.

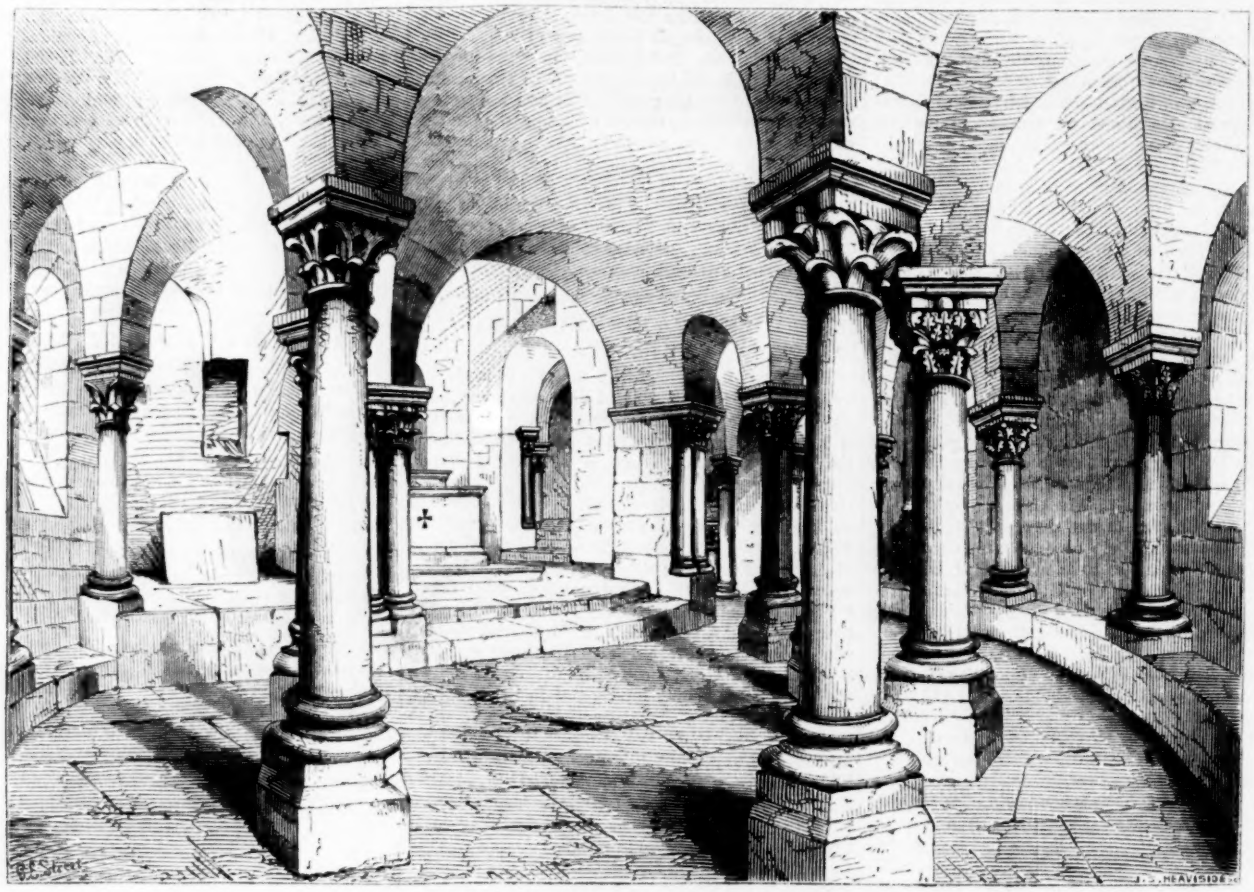
The oldest portion of the building is the square choir, covered with a dome; under which stands the principal altar. To the (ritual) east and north of this are apsidal projections, and to the south an archway, which opened, no doubt, into a third apsidal chapel; whilst the entrance was at the west. The archway now leads into a chapel of irregular form, part of which extends over the porch of entrance. The whole interior appears to have been richly painted. The dimensions are very small.

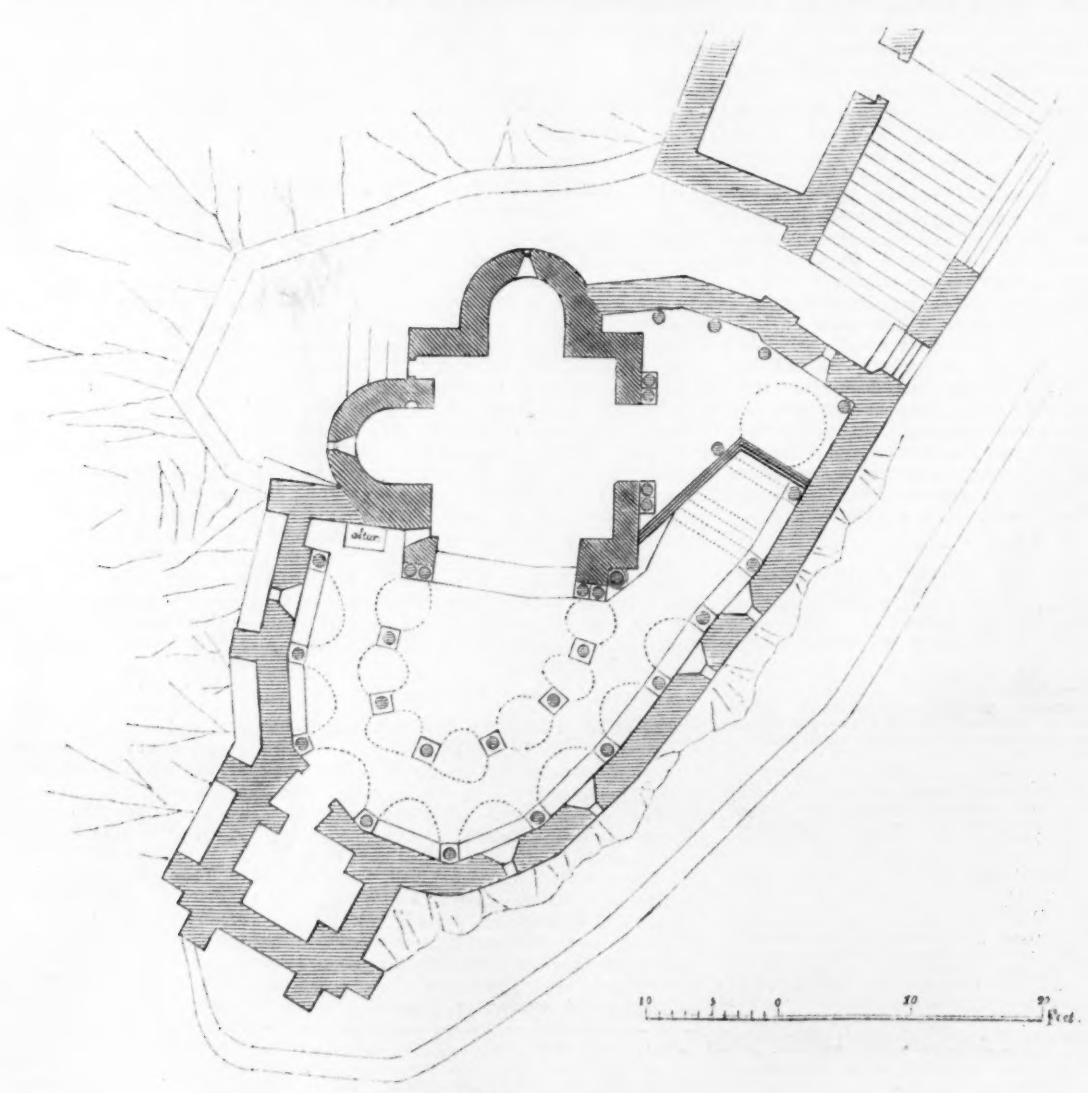
The mosaic in the entrance front is formed with black tufa, and red and white tiles, the stone being a light yellow sandstone.

* See page 36, *ante*.

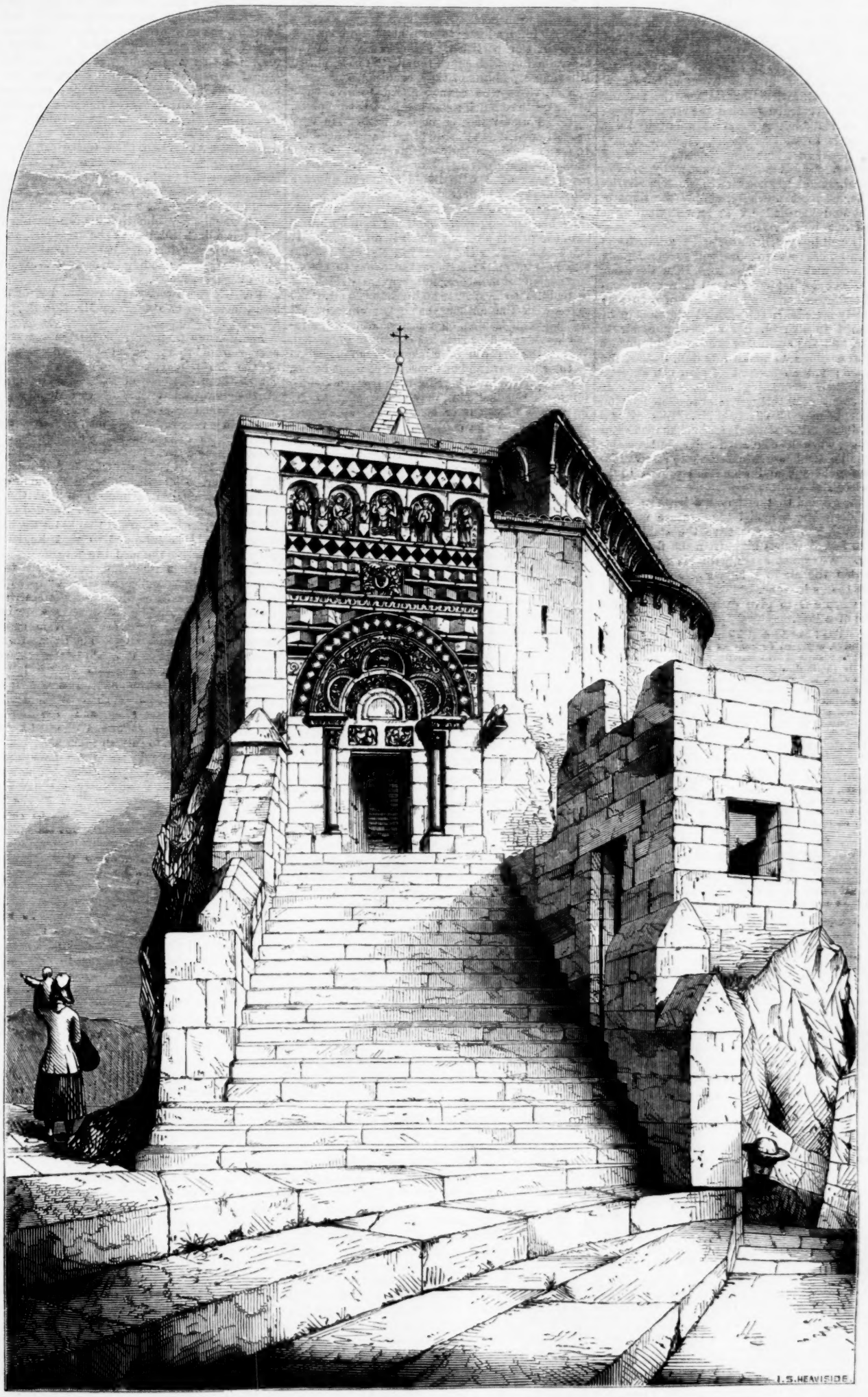
CHAPEL OF ST. MICHEL DE L'AIGUILLE, AT LE PUY.

Interior of Nave looking towards the Chancel.





Ground-plan.



CHAPEL OF ST. MICHEL DE L'AIGUILLE, AT LE PUY, FRANCE.—*Exterior View of Entrance.*

REMARKS ON STABLES.*

PLENTY of breathing-room is of the first consequence, whether we are providing entertainment for man or beast. Mr. Miles has wisely a very strong conviction as to this necessity, for the beast at any rate; and in this handsomely-printed volume sets forth, with illustrations, the manner in which he proceeded to give the required space in his own stable. All cannot afford to lodge their horses so well as others, or even to give themselves as much breathing space as science and common sense say is desirable; but many, even in stables where cost has not been considered, restrict their horses most unwisely, simply for want of thought and knowledge. It is well known, as pointed out by Mr. Miles, that a horse whose stable is well lighted, drained, and ventilated, and in which he has room to move, will do considerably more work, and require less corn, than the same horse would do, if kept tied up in a badly-contrived stable, although his allowance of corn may be greatly increased: the vitiated atmosphere he is doomed to live in, the want of pure air to breathe, and the absence of the cheerful influence of light, combine to make him dull, listless, and dispirited; and no amount of corn can counterbalance their depressing effects. In order to direct attention to this fact, and to show how improvements may be effected, Mr. Miles gives a detailed account of some alterations he made four years ago, when he converted a five-stalled stable and small coach-house into a stable to receive four of his own horses, and which has proved to be very successful.

On the ground that, although a large supply of air be desirable, a genial temperature must be maintained, he would not have the stable more than 10 feet 6 inches high, from the floor to the ceiling. We cannot agree with his reasoning to prove that the air in a lofty stable will be more impure than a low one.

His scheme is to give each horse a loose box, instead of a stall.

"The stable I had to deal with," he says, "was, like many others, made to contain as many horses in a row as could be crammed into it with any prospect of their being able to lie down. It was 30 feet long by 16 feet 6 inches wide, and contained five stalls: each stall was 5 feet 8 inches wide by 6 feet 3 inches deep, measured from the front of the manger, which occupied 10 inches, to the heel-post: this left a space of 9 feet 5 inches from the heel-post to the front wall, which space was useless, excepting in so far as it gave the horses ingress and egress to their stalls, and contained a gutter, that extended from end to end of the stable, affording very questionable drainage; so that the distribution of space amounted to this,—459 square feet were divided between five horses, giving 35½ square feet for the accommodation of each horse, while 282½ square feet were appropriated to the gutter and gangway; which by no means accorded with my notions of a just apportionment of the space."

Having called in Mr. Hayward, architect, of Exeter, to carry out his views, he proceeded:—

"The removal of the wall between the stable and coach-house gave me an area of 39½ feet by 16½ feet. I should have liked some 2 or 3 feet more of width, if I could have had it, but as that was impossible, I was obliged to make the best of the space I could get, and my first care was to ascertain how I could apportion it, so as to give the largest possible amount to the horses, and retain the smallest convenient amount for a passage to their boxes; and after a series of measurements of various stable-doors and gangways, I determined that 4 feet 4 inches gave ample room for a horse with his harness on to pass freely through, provided there were no projections, that he could by any accident hitch in; and the experience of four years has fully confirmed my conclusion, for I have never yet met with a single mishap; nevertheless, I should always prefer a wider passage, when it can be obtained without contracting the boxes."

Having settled the width of the passage, the remaining space was easily disposed of:—

"I found, after allowing for partitions and lining, that I could make four loose boxes, each measuring 11 feet 6 inches by 9 feet 8 inches in the clear, which is very nearly as large as I should ever desire to have them in my own stable. I think that 12 feet by 10 feet for moderate-sized horses, and 12 feet square for horses sixteen hands high, is quite as large as any box ought to be in a stable where horses are permitted to see each other; for, when the boxes exceed these dimensions, the horses are very apt to jump and play in them, and may chance to slip up and injure themselves: they should have perfect freedom of motion, but not so much room as would tempt them to play.

The result of the new arrangement was, to give each horse rather more than 111 square feet to move about in, instead of 35½, which is all the space that was allotted to him in the stable before the alteration.

The next point demanding consideration was, how to contrive a convenient entrance to the stable itself; and here, again, I was somewhat cramped for room; but, by projecting a building from the front, 6 feet long and 8 feet wide, opposite the door of the first box, I was enabled, by placing the door of the adjoining box close to it, to obtain a ready access to both these boxes, while at the same time I improved the entrance to the stable; and, on the whole, the 6 feet now added to the 4 feet 3 inches already existing in the stable has made a very fairly commodious entrance, although I should have preferred a larger projection, if there had been room for it."

In forming the Boxes, it must be remembered that while the horse should have a quiet corner to feed in, he likes to see his neighbour. A ramp in the partition, falling away from the rack, filled up with ⅝-inch round iron bars, placed 1 inch apart, admits of these conditions.

Even those who cannot afford to give their horses quite so much room as Mr. Miles proposes, will find useful matter in the book. He very properly denounces the use of bell traps in stables. In many situations they are invaluable, but in a stable they are out of place. They form evaporating pans filled with liquid refuse, to afford a constant supply of noxious gases.

The flooring of stables is a matter of very considerable consequence. Nothing can be worse than the pebble pitching which is often used. It is inconvenient for the horse to stand or lie upon; soon falls into pits; enables the earth to absorb any amount of moisture, and frequently retains it in puddles to evaporate and poison the air. We agree with the author that good clinkers, set herring-bone fashion, on a bed of concrete, form the best stable floor that has ever been suggested. Where the expense of clinkers is an objection to their use, hard and unabsorbent common bricks, placed on edge in a herring-bone pattern (which improves the foothold), may be substituted. No brightness of colour or smartness of appearance should lead to the choice of bricks which are more absorbent than some that might be had, if more ugly in appearance. If concrete cannot be obtained, some other material must be found to form a firm foundation, without which the floor will soon become a great evil.

By the way, our author's prescription for concrete is not *quite* the thing. He says:—

"Mix well-washed gravel and broken brick together, in the proportion of three parts of the former to one part of the latter, and to six measures of this mixture add one measure of fresh lime, recently ground. The gravel should neither be too small, nor too large, but varying from the size of a hazel-nut to that of a chestnut."

Without *sand*, concrete is worthless. If the gravel or ballast used do not include sand, it must be added.

Iron for mangers, Mr. Miles thinks a cold and uncomfortable material for a horse to feed out of, particularly in winter, when its surface is wetted with the condensed breath of the horse. He prefers, too, a wooden rack, on a level with the horse's head (he illustrates a very good arrangement of one, with a drawer under for the hay seeds), to the low iron one now getting into use,—

"For, besides the chance there is of a horse getting his feet into a low rack, when he is either frolicsome or alarmed, it is open to the objection that he is constantly hanging his head over his food, and breathing on it while he is feeding, which renders the undermost portion of it moist and warm; and makes him reluctant to consume the whole of it. No doubt a horse does sometimes pull out and waste some of his food from a raised rack, but I question whether he wastes as much from a high rack as he spoils in a low one; and the portion he does eat is fresh, and free from the moisture, caused by his having breathed on it."

The difficulty of repair or alteration to make it fit the special circumstances has also to be considered in deciding on the use of iron in the country.

We have said enough to show that Mr. Miles's book deserves the attention of those who are interested in the construction and use of stables.

* General Remarks on Stables, and Examples of Stable Fittings; with Illustrations. By W. Miles, esq. London: Longman, Green, & Co. 1860.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE ordinary meeting of members was held on Monday evening last, at the House in Conduit-street.

The chair was taken by Mr. Godwin, V.P.

Routine business over, it was announced that Herr Lepsius, of Berlin, and M. Mariette were proposed as honorary members.

Professor Donaldson said he wished to offer a few observations upon the nominations just read, although he was aware that it was somewhat unusual; but his excuse was to be found in the eminence and high character of the gentlemen referred to. Herr Lepsius, of Berlin, was the Chief Commissioner sent by the late king of Prussia to explore and report upon the ancient monuments of Egypt. His late Majesty had forwarded to the Institute a copy of the illustrations made for the costly and valuable work which Herr Lepsius had produced; and the gift would be the more enhanced when the text which the learned author was now preparing had been sent. He (Professor Donaldson) therefore felt that he was entirely justified in recommending that Herr Lepsius should, on account of the position which he held in connection with Egyptian architecture and remains, be elected an honorary fellow. With respect to M. Mariette, he had a double motive in recommending him for the honour which it was proposed to confer upon him. He, too, had done much on behalf of Egyptian monuments, and he had, in addition, the entire control of the explorations and researches now making by order of the present viceroy. On this account it was desirable that he should consider himself as belonging to the brotherhood of architects in Europe; so that when the English architect visited Egypt to examine her monuments, M. Mariette might feel that he had a claim upon him, which his generous nature could not resist. At present there was great difficulty in making memoranda, measurements, or even sketches; and he believed the best possible way of warming the ice about the heart of M. Mariette would be to elect him a member of the Institute, which would show him that his brethren in England felt a deep interest in the excavations which he was now carrying on. He had therefore great pleasure in recommending the name of M. Mariette as an honorary fellow.

Mr. Bell (hon. secretary) read a list of donations, including two works by Mr. Roberts, on the dwellings of the poor.

Mr. Penrose (hon. sec. for foreign correspondence) referred to a donation of the recent number of the *Bauzeitung*, containing an account of the Basilican churches in France (including many of the beautiful towers of Picardy and other places), taken from standard works and put together in a very interesting manner. Among the other foreign donations was a description of the great railway from Vienna to Trieste. Mr. Penrose said he had also received a letter from M. Lesueur, acknowledging the communication from the council, informing him that the gold medal of the Institute had been awarded to him. M. Lesueur, having returned thanks for the honour done him, said he intended to visit England on purpose to receive the medal in person.

Professor Donaldson said he wished to call attention to a communication signed "Wat Tyler," which had appeared in the *Builder* of March 2nd, to the effect that certain architects were in the habit of receiving a per-centage from manufacturers upon the goods supplied by them. He (Professor Donaldson) felt it would be unnecessary to describe further the contents of the letter to which he referred, as no doubt all who heard him had already seen it, but he thought the Institute might take the matter up, and request "Wat Tyler," or any other tradesman who had a similar complaint to make, to furnish them with evidence, so that they might take steps to vindicate themselves from all such contamination. The council now invited "Wat Tyler," or any other tradesman, to state whether any member of the Institute had received any such gratuity, so that the council might be able to carry out the rules and regulations of the Institute.

The Chairman, in moving that a vote of thanks be given to the donors to the library, observed, that with regard to the letter signed "Wat Tyler," he happened to be able to state that it came from a most respectable firm, who, he had no doubt, would be prepared to prove the truth of what they had advanced. In thanking Mr. Roberts for his works, he thought it just to say, that the necessity of improving the dwellings of the poor had not been lost sight of by architects. It had been alleged that the movement in this respect did not come from the architects; but there was no difficulty in finding evidence of the untruthfulness of the statement. He was informed that Mr. Roberts intended to prepare a paper on the subject, to be read at a future meeting. He had two or three unconnected statements to make. First, he had to announce the death of one of their honorary fellows, the late Duke of Sutherland. He had also to communicate the fact, that a memorial had been received by the council, signed by eight members, requesting that a special general meeting might be held to consider whether, in the recent appointment of Mr. Joseph Bonomi to the office of curator of Sir John Soane's Museum, in Lincoln's-inn-fields, the Royal Academy had selected an English architect who had distinguished himself or gained any academical prize, as bound by the terms of the Act of Parliament;—or that the council would themselves take steps upon it. The council, to whom this memorial was addressed, did not consider themselves in a position to take any steps in the matter, and preferred that whatever action might be taken should proceed from the members at large. They had therefore arranged that a special meeting should be held on Monday next, to take into consideration any proposal which might be brought forward by the gentlemen who had signed the memorial. He also wished to inform the meeting, that, so long ago as December last, the council had come to a resolution that it was desirable archi-

tecture and construction should be adequately represented in the Great Exhibition of 1862. He mentioned this circumstance with the view of intimating that the council would be happy to receive any hints or suggestions which might be forwarded to them by members of the Institute. As a pendant to these various items which it was his duty to bring under the notice of the meeting, he had to add that certain leading firms had come to a determination on the subject of wages, and had laid the particulars before the council. They proposed that, inasmuch as the present rate of wages to skilled workmen was 33s. per week for 58½ hours' labour, and 20s. per week to labourers, the skilled workman should be paid 7d. per hour, and the labourer 4¼d. per hour. The firms to which he referred stated that, under this arrangement the men employed by them would be enabled to work as many, or as few, hours per day as they pleased. It was to be hoped that this arrangement would secure that hearty co-operation and good feeling which it was so desirable to promote. He was sure the architects, as a body, would be happy to assist, by all means in their power, in any amicable arrangement that might be made between masters and men, so that nothing so disastrous might again be witnessed as that which occurred in 1859 and 1860.

Mr. Boulnois thought it would be well that publicity should be given to the fact that all architects now introduced a "strike clause" into their contracts (the large firms having insisted upon it), so that if the men were to take a step which they fancied would coerce the masters, they would find themselves in a very serious position.

Mr. Ferrey thought the suggestion was a very good one, and had his entire approval. He inserted the "strike clause" in all his specifications.

Mr. Bell (hon. secretary) called attention to a report which he stated was prevalent in the neighbourhood of Croydon, to the effect that the magnificent mansion belonging to Beddington-park was about to be taken down, and the materials sold.

Mr. Ferrey said that Beddington-park was one of the most magnificent halls in the country, equal to Eltham or Hampton-court. He did not know whether the subject was one which could legitimately be brought under the notice of the Institute, or whether it was one for the Archæological Societies; but the matter was one which called for the serious consideration of some body or other. While upon this subject, he might mention that there was another most interesting monument threatened, at South Petherton, in Somersetshire, called, "King Ina's Palace" (a romantic name merely), but which was a building of extraordinary beauty. The plan was excellent, and the elevation beautiful. He was not aware that any representation of it was to be found in illustrated books, and it seemed to have escaped the attention of both Mr. Pugin and Mr. Nash. He was in the neighbourhood a month or six weeks ago, and the house was in such a state that any tempest might destroy it. He understood that the honourable member for Somersetshire had offered to purchase it, but he was informed that a good title could not be shown, and the negotiation fell to the ground. He hoped that some steps would be taken before it was too late to secure some faithful representation, by photograph or otherwise, of so interesting a building.

Professor Donaldson referred to the clearances effected in Paris by the Imperial Government, and observed that, if we were in Paris and not in London, a deputation would wait upon the Chief Commissioner of Public Works, and ask him to use his influence to save such monuments as those to which Mr. Bell and Mr. Ferrey had referred. We were not blessed with a paternal Government, or one which took the slightest interest in art, architecture, or the embellishment of the metropolis, otherwise a deputation might wait upon Mr. Cowper, the Chief Commissioner of Works, and ask him to take some means to preserve so interesting a record of antiquity as the Somersetshire building. Under present circumstances, no good would attend such an application; for the Government took no interest in such matters. He would like to know what sum it was proposed to lay out in the embellishment of London in the next twelve months?

Professor Donaldson having stated that Sir Gardner Wilkinson, who was in Devonshire for the benefit of his health, had requested him to express his regret that it was not in his power to be present that evening, then proceeded to read Sir Gardner's paper, entitled "Saracenic Style distinguished from the Byzantine." (This will be found partly printed in our pages elsewhere.)

At the conclusion,

Mr. Fergusson inquired who it was who said that Saracenic architecture was merely the development of the Byzantine, in reply to which the paper had been written?

Professor Donaldson said he did not know. Sir Gardner Wilkinson had started with it as an admitted theory.

Mr. Fergusson said he did not think Sir Gardner Wilkinson had quite described what was the origin of the mosque. The only precept of the Koran with regard to public or private worship was, that every true believer should, when offering up his prayers, turn towards Mecca. Mecca was the only sacred place in the Moslem world; and the main object of the mosque was to show the direction of the sacred shrine. The mosque was, in fact, a wall; and, in the poorer villages of India, the people dug a ditch, whitewashed it, ornamented it with flowers, and converted it into a mosque. The next thing they did, for the convenience of the worshippers, was to make a platform or stone pavement, against the wall. In cities and populous places, it became convenient to inclose the space, which was done by building a wall so as to form a courtyard. This done, it became a complete mosque. The next stage was to cover it over so as to form a shelter from the rain, or the heat of the sun. The main and essential part, however, was the wall, and all the rest was considered as merely accessory. Having made the mosque, the next thing to be provided was a place for the faithful to make their ablutions. This consisted of a fountain placed in the centre. Then there was the place from which the priests called the people to prayer, and sometimes the roof of the mosque and sometimes a minaret was used for that purpose. The Moslems, however, had no ceremonials or particular forms of public worship; although, in the great mosque at Cairo, there was a pulpit from which the priest read the Koran on a Friday. The form of the mosques was not in all places the same. In Spain, for instance, there were the remains of Saracenic buildings in the basilica shape. All that Sir Gardner Wilkinson had said confirmed the general belief with regard to mosques, although he had not gone to their origin. It was, he (Mr. Fergusson) thought, a mistake to suppose that a dome was an essential part of a mosque. On the contrary, it was essentially a portion of a tomb; but the Moslems gradually introduced it, and formed it bulb shape because they considered it had a graceful architectural effect, which no doubt it had, when associated with the minaret. With regard to the pointed arch, he thought it was clear that it was used in the East before it was introduced into the West. It was used by the Greeks and Egyptians as a horizontal arch, and it was found among Etruscan tombs. He did not think it was used in the west as a definite feature until the eleventh or twelfth century; but it was used in France at an earlier period, probably in the eighth or ninth century; but, when they attained greater efficiency in the art of construction, they abandoned the pointed arch, and took to the circular. This was a point, however, on which it was difficult to arrive at any correct theory; but he thought it most probable that the Saracens adopted it for lightness, and the Goths for its constructive features. The Hassan mosque, the oldest in Egypt, and by far the finest, contained the decorated pointed arch, and it was built about the year 650. The columns were Corinthian, and evidently copied from Roman buildings. In some cases he observed that the capitals had been eked out with wood.

Mr. Papworth inquired whether Mr. Fergusson could assign any reason for the existence in some mosques of more than one minaret?

Mr. Fergusson replied that he thought the second was added for ornament.

Professor Donaldson said it should be borne in mind that some of the mosques were very large buildings, sometimes 400 feet in length; and it was just possible that two minarets were built in order that the voice of the priest calling the people to prayer might be heard a greater distance. With respect to the shafts of columns called antique, he had examined them very carefully, and he found them so very rough, and the proportions of the bead and fillet so crude and out of shape, that he had arrived at the conclusion that they were of the same date as the mosques themselves. There was an abundance of marble about Cairo, and he was of opinion that the columns were rough copies, and not adaptations.

Mr. Kerr moved that a vote of thanks be accorded to Sir Gardner Wilkinson for his interesting and erudite paper, and to Professor Donaldson for reading it. He observed that he had listened with great interest to the discussion that *vexata questio*, the origin of the arch; and that he could not help thinking that sufficient attention had not been directed to the theory of that assigned to the vault the origin of the arch.

Mr. Papworth, in seconding the vote of thanks, asked whether Mr. Fergusson could explain how it was that the Saracenic appeared to be applied to styles of architecture all over the world.

The Chairman said that the profession in general had reason to be much indebted to Sir Gardner Wilkinson, and the Institute particularly so, for that and previous papers; and he had no doubt they would feel it a privilege to join in the vote of thanks to him.

The motion having been carried *nem. con.*,

The Chairman said he had great pleasure in announcing that on Monday, the 8th of April, Professor Willis would read a paper on the architectural history of Chichester Cathedral, and on the recent fall of the tower. He had also to state that on the 22nd of April the gold and other medals would be delivered, when M. Lesueur would probably attend to receive that voted to him.

Mr. Anthony Salvin, associate, of 4, Adam-street, Adelphi, was, on ballot, elected a fellow of the Institute.

The following gentlemen were elected associates:—Mr. William George Jackson, of Freemantle, Southampton; Mr. Cæsar A. Long, of 29, Union-street, Hackney-road; Mr. Robert James Johnson, of 10, Belgrave-street South, Pimlico; and Mr. Alfred P. Strong, of 49, Stanhope-street, Gloucester-gate, N.W.

THE ARRANGEMENT OF A GENTLEMAN'S HOUSE.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening, the 15th inst., at the House in Conduit-street; the President, Mr. T. Roger Smith, in the chair.

Messrs. Isaacs and Simpson were, on ballot, elected members of the Association.

The President observed that, before proceeding to the other business of the meeting, he wished to draw their attention to a subject of some importance to the architectural profession, and in connection with which it might be advisable for them, as architects, to take action. He referred to the Great Exhibition of 1862, which was not to be confined to art manufactures only, but which would include the fine arts—painting, sculpture, and architecture. He believed that those whom he addressed would be of opinion that architecture ought to be worthily represented. Those who had visited the Paris Exhibition in 1855 would no doubt remember the fine drawings displayed there, many of which, he was happy to say, were contributed by Great Britain. He believed, if the members of the various architectural societies would exert themselves to cause an adequate representation of their art to be made at the forthcoming exhibition, a great number of drawings, models, and photographs might be collected. The members of the London clubs might, for instance, be induced to contribute models or photographs of their buildings; and, if ancient works were admissible, representations might be furnished of some of our fine old cathedral piles. With the view of bringing the subject under notice, the committee had prepared a resolution, which he begged to submit, in the following terms:—

"That, in the opinion of this Association, it is highly desirable that, in the forthcoming Exhibition of 1862, the art of architecture should be worthily represented, and that measures should be early taken to secure this object. That this Association offers its co-operation towards any general measure for promoting the completeness of the architectural department of the forthcoming Exhibition; and hereby invites the other architectural societies of Great Britain to do the same."

Mr. Blomfield (V.P.) seconded the motion, and it was then put from the chair, and carried unanimously.

The President said that the reading of the paper appointed for that evening was unavoidably postponed, but that Mr. Kerr had kindly offered to supply the place with some remarks upon the arrangements of a gentleman's house.

Mr. Kerr (preparatory to reading his paper) observed that it had not been prepared for the present occasion, but that he had great pleasure in making it subsidiary to the filling up of an hour. In venturing to make some observations upon the plan of a gentleman's house, he felt that he was directing attention to a subject of great practical importance to the student of architecture, both as a matter of design and as a matter of business. There was, in fact, no subject more likely to ad-

vance an architect in his profession than a knowledge of design and construction as applicable to gentlemen's private houses. It would not be profitable for him that evening to go at full length into the subject, but he proposed to lay before his readers some general maxims, and to make some practical remarks upon the principal family rooms of a house suitable for the accommodation of an English gentleman. When he spoke of a family house, he referred to the house of a family of position; and, in order to design such a building, it would be necessary to study the habits of society in that sphere of life. His main object would be to explain some of the principles upon which a country house ought to be planned; for he need scarcely remind his hearers that some of the most successful English architects, both as respects position and emoluments, had confined their practice almost exclusively to the building of country houses. In his opinion the building of a country house was one of the most important duties to which the architect could apply himself.

Referring somewhat in detail to the classification of apartments, as dwelling-rooms, sleeping-rooms, supplementary rooms, children's rooms, offices, and thoroughfares, it would be seen, the lecturer said, that there are certain of these which, fitly arranged, form the essential system of a gentleman's house, even on the smallest scale; and that the remainder, and others of their kind, are but the amplification of the same essentials according to the wealth and dignity of the owner; the character of a gentleman-like residence being not matter of magnitude, or of decoration, but of precision of arrangement and contrivance. The characteristics which an English gentleman of the present day especially values in his house, he would set forth thus, namely,—*quiet comfort* for his family and guests; *thorough convenience* for his domestics; elegance and importance *without ostentation*.

Taking, as the first point for discussion, that of *privacy*, he pointed out the principle as most essential with the better classes of English people, that there shall be a distinctive and complete separation between the family and the domestics; the underlying idea being this, that there are two communities, each entitled to shut its door upon the other; a principle not so much regarded in an inferior class of houses, but acquiring increased importance as the style of the establishment advances.

Speaking, secondly, of *comfort* and *convenience*, it was observed that although the comfortableness of a house, in the more ordinary sense of the phrase, implies exemption from damp, smoky chimneys, draughts, kitchen odours, vermin, summer sultriness, winter cold, &c.; yet that in its larger sense proper comfort included the idea that every room shall be for its special purpose carefully contrived, as an integer of the plan; it being a good rule that no apartment should pass muster in the design until the furniture has been plotted upon it, and its convenience proved. Spaciousness throughout, with abundant light and perfect ventilation (both from the external air alone), were always most important.

Thirdly, treating of *aspect* and *prospect*, the lecturer pointed out the great importance of a good aspect, and the singular neglect of this principle in most cases; observing that every room whatever has not merely a right aspect as opposed to a wrong, but generally a very limited range of suitable aspect as against the entire remainder of the compass more or less unsuitable. He also alluded to the great value commonly assigned to considerations of prospect, for which those of aspect were probably too often sacrificed, without at least sufficiently drawing upon ingenuity to accommodate both demands. The general question of aspect, he further said, is threefold,—as regards sunshine, weather, and prospect. The sun being south at noon, east at six a.m., west at six p.m., and so on, such rooms as require coolness and shade at any particular time of day, must be aspected accordingly. As to weather, west being generally the wet quarter, and east the dry; north, gloomy; south, sultry; south-west, exposed to boisterous winds; south-east, the quarter of mild winds; and so on; the various rooms must be again aspected with reference to this. Lastly, speaking of prospect, as a southward view in the day-time has the sun in the picture, while a northward view has the landscape in full light, and the like with other quarters at different hours of the day, there must thus be one more question with reference to which the aspect of windows ought to be determined; the problem here being to secure, at a given time, an approved *chiaroscuro* for the landscape in view.

Taking up, fourthly, the matter of *elegance and importance*, it was carefully pointed out as being a fundamental consideration with the class of English gentlemen, and their ladies no less, that decoration and display must be confined within strict limits,—architects being as a rule difficult of restraint in this respect, and somewhat pertinacious in introducing precisely what their clients desire to avoid. Perfect neatness and grace must always be studied, but ambitious artistic effect decidedly spared, that there may be no interference with homely comfort, and no suspicion of ostentation suggested. Even in cases where rank and wealth surround themselves with costliness and luxury, simplicity and subdued power will still be preferred, and the glare of mere pomp despised. An effect of due importance, however, will always be expected to be produced, exaggeration being distasteful; but the exact proper value for the cost expended, exhibited in a spirit equally removed from ostentation and meanness, being the rule. In the interior something like license might be taken,—although not with the rooms, with the thoroughfares, such as the hall, corridor, and staircase: indeed, as matter of dignity, this would often be not only permitted but encouraged, the instances being many where an injudicious management of these portions of the house have given to a mansion the inferior appearance of a cottage; while, on the other hand, a little expansion in other cases has conferred upon a cottage all the importance of a mansion.

Turning now to the detailed characteristics of apartments, the lecturer proposed to touch briefly upon the principal of these, so far as time would admit.

The *dining-room* of an ordinary mansion was described as a spacious and comparatively stately apartment, to be cool and free from the glare of sunshine at the hour of evening dinner; and, as regards external position, somewhat retired. The best aspect would be north, or north-east, or east, but for the east wind; or south-east, but for the sunshine during the day; south, south-west, or west, being altogether objectionable. The lecturer then explained the preference for side windows over end windows as the primary light of the room; the advantage of end light in addition in a large apartment (looking east rather than west); the compromise of aspect for prospect; and the danger of over-estimating the value of the latter; and the great service of the bay window as a means of accommodating conflicting demands of this kind. The process of determining the width and length of a dining-room was then described; and the principles of arrangement for the side-board, fire-place, and doorway. The uses of the service-room were also set forth, and the relation of such an apartment to the dining-room on one hand and the kitchen on the other. The case of a dining-room used as the family sitting-room was likewise treated of, where what may be called drawing-room elements must be introduced, not only in furniture, but in aspect more especially; the south-eastward being now decidedly preferable; the fire-place, also, requiring to be disposed on new principles, namely, those of the sitting-room and the fire-side. The general design of a proper dining-room, it was also remarked, ought to be massive and substantial, as if of masculine importance, although not devoid of cheerfulness.

Speaking of the *morning-room*, it was remarked that this served to relieve, in a manner, both dining-room and drawing-room; being used as a breakfast-room and also as a sitting-room for the ladies during the early part of the day; and, in more homely establishments, being still more used. For breakfast, the aspect might best be eastward, a south-east window taking, at 9 a.m., the sunshine full in front; but for a sitting-room, south-east would be preferable, keeping the sun from morning till 1 p.m., due south being the extreme.

The *drawing-room* was next discussed, as essentially the ladies' apartment—the modern form of the ladies' withdrawing-room of the olden time; its purpose being for the reception of visitors, the assembly of the family and guests before dinner, the evening circle afterwards, the reception of evening parties, and so on. This room might be said to be perhaps the simplest in the house as respects principles of plan, there being only one kind of drawing-room, with little difference, except in dimensions and luxury, between that of the duchess and that of the homeliest gentlewoman. The character to be aimed at must be especial cheerfulness, refinement of elegance, and lightness of style; decoration, therefore, requiring to be comparatively minute and delicate, and the whole effect, so to speak, entirely lady-like. The dining-room and drawing-room would thus be in contrast. As to aspect, this must avoid equally the wet west, the bleak east, the afternoon sultriness of the south-west, the shadow of the opposite quarter, and so on; the south-east becoming thus the nearest approach to perfection,—cheerful and pleasant early in the day, shaded from the level sunshine of the evening, and exposed only to the mildest winds; south being sultry, and west taking little else than the evening glare and the rain. The principles of side windows, as laid down for a dining-room, would still apply, with end windows in addition, for large rooms. Prospect would be always worthy of serious consideration, although best to be dealt with by end windows (if compromise of aspect be required), which may be south-west, or even west, if necessary; east or north-east; the eastward views having the special advantage of presenting the landscape in the afternoon and evening well lighted pictorially, and the southward views for full daylight effects being placed at a disadvantage. The use of the bay window might now be still more advocated; the more serviceable from being not three, but five, sides of a regular octagon; whereby it is always possible, by closing three sides against the sun, to have two uncovered. Further remarks were made in explanation of the particular principles of plan governing a sitting-room, so as to produce a comfortable fire-side, by the judicious relations of fire-place, light, and entrance,—a result often found to be extremely difficult of accomplishment, especially in a small room, unless it be nearly square. The question of doors of intercommunication generally was also touched upon, these being frequently demanded for family convenience, but nevertheless, as a rule, to be discouraged by the architect.

After describing the *library* and *boudoir*, the lecturer treated of the *gentleman's business-room* and of the *study* in such a case as that of a parsonage; adverting to the difficulty sometimes experienced in finding a place for writing which shall be properly situated as respects the light, the door, and the fire; and laying it down as the best rule that the occupant, when seated at his desk, shall have at his back a blank end wall or bookcase; on his right the fireplace, near that end; on his left the window, near the other end; and in front, the door. The *secondary entrance* for the business room was also described.

Speaking briefly of the *family thoroughfares*, attention was first directed to the *porch*, more particularly as to the correction of a blustering aspect for the entrance,—south-west, north-east, or the like; the plan in such cases being to place the outer doorway with an aspect at right angles to that objected to; the north-west being, however, particularly unfortunate in this respect; inasmuch as both the aspects at right angles to it, namely, north-east and south-west, are equally bad with itself.

The *entrance-hall* was alluded to as an apartment existing in so many characteristic varieties as to be a sort of criterion of class for the house as a whole. Two very different principles of plan were to be found developed in contrasted buildings; in the one case the route of entrance being central, leading directly forward, through a symmetrical hall and vestibule, to the staircase, or some other chief object; while, in the other case, symmetry and directness are avoided, the outward doorway being in one corner, for instance; the inward doorway at some point of contrast rather than correspondence, and the latter entering the corridor in an equally one-sided manner. The first plan must always be more classical and stately; the other being considered to exhibit more domestic convenience; but, although it may not be desirable to sacrifice comfort for mere symmetry; yet, to carry irregularity into affectation must be still more unrefined.

The *gallery* or *corridor* of a mansion was next spoken of,—the desirableness of side windows rather than end ones; the objections to ceiling light as cheerless; the propriety of a centrical position for the principal staircase; the necessity for avoiding complex forms of plan, and so on. The internal relation of the rooms to each other being the relation of their doors, it must be always best to place the doors of the chief apartments in prominent positions, so that they cannot be mistaken. The route between the entrance and the drawing-room ought also to be well arranged; the same of the route between the dining and drawing rooms, avoiding that twisting of the line which occurs, for example, when both doors are on one side of the corridor. The preservation of the corridor, as far as possible, in privacy, was also a thing to be carefully attended to, the routes of the servants being kept clear of those of the family as far as possible.

After a few remarks on the *principal staircase*, Mr. Kerr concluded his lecture by again express-

ing his regret that time prevented him from going further into the detail principles of plan, as relating to the sleeping-rooms, for instance, and the domestic offices; but earnestly recommending to the younger members of the profession the study of this subject as a whole, in all its intricacy and minuteness; such study constituting one of the shortest roads to professional usefulness, and even eminence.

At the conclusion,

Mr. Blomfield, in moving that the thanks of the meeting be awarded to Mr. Kerr, said that he could add nothing to the admirable and practical observations which that gentleman had made; save that he could not entirely agree with him in what he had stated as to doors of intercommunication. It was, he knew, a frequent complaint among ladies that, in consequence of rooms generally having but one door, they had no mode of escape before visitors were announced.

Mr. T. Blashill seconded the motion; and, after some pertinent observations from the Chairman, it was carried.

OXFORD ARCHITECTURAL SOCIETY.

WALTER DE MERTON AS ARCHITECT.

AT the third meeting of the Oxford Society, March 3rd, Mr. James Parker read a paper "On Walter de Merton, as Chancellor, Founder, and Architect." Merton was one of the four chancellors to whom Oxford may be said to owe its chief glories; the others being Wykeham, Waynflete, and Wolsey. Considered as architects and with reference to the colleges they founded, the speaker said:—

"If Walter de Merton's plan was not so perfect as that adopted by Wykeham, Waynflete, or Wolsey, we must remember that he was the first in the field. And if Wolsey's was the more glorious of the four, we must not forget that he had Magdalen before him as a model, which had copied to some extent from New College. And if we owe probably the earliest introduction of the Decorated style of architecture to Walter de Merton, we are, according to the theory of many antiquaries, equally indebted to William of Wykeham for the Perpendicular style, a style which Waynflete may be said to have developed to perfection in Magdalen tower (and its design is generally attributed to him), and which, in its declining years, would still have had a monument to boast of worthy of its pristine vigour had Wolsey been able to carry out the design which he had conceived.

Thus in the history of each of the four chancellors it is the same. To whatever they turned their mind, in that they seemed to excel."

He then proceeded to trace the various incidents of Walter de Merton's life, which touched upon his high fame in the three characters of chancellor, founder, and architect. With reference to the last he showed how Merton Chapel was in advance of its age. He said:—

"I do not mean to say that it is any very decided advance upon the usual character of the architecture at the time, because a sudden step occurs in no single instance in the history of architecture. But what I do assert is, that you cannot find any instance, either in England or abroad, of this character ascertained to be of a previous date.

It amounts then to this, that at a very critical point in the history of architecture, Merton Chapel is an instance of a step in advance: it probably did much to direct the style in the course which it afterwards followed."

He compared it to Cologne Cathedral, which was building at this time. He showed that the one did not copy from the other: the designs were quite different. Those of Merton College were thoroughly English: those of Cologne were essentially German. But there was this connection: they were both one step in advance of the style prevalent at that age in their respective countries. He adverted briefly to Walter's friendship with Richard, King of the Romans, which enabled him to keep *au courant* with the development of architecture, as naturally the attention of all European architects was then bestowed upon the great cathedral of Cologne. To continue the narrative, he said:—

"Walter had by this time, as we have seen, *i.e.*, 1274, brought his students to Oxford. Though resident in Rochester, to which see he had been preferred, his heart must have been in Oxford, planning and rearing his college, watching no doubt anxiously the workmen, looking forward no doubt with fear, probably with hope, to the future. It was no slight task he had undertaken. It may seem easy to us, with so many examples around us, to design a college; but then it was not so. The experience of six centuries which we have was wanting to him, and yet how little, if we take all into account, have those six centuries improved upon the conception of that one mind!

"He was permitted then, by the providence of God, to see his great work being accomplished: the technical and legal difficulties had all been surmounted, the ground purchased, the buildings rising, and, above all, his chapel in a sufficiently forward state to have its high altar dedicated.

But the life of the great man was drawing to a close.

Whether he felt it himself, whether for this reason he had already executed his will, or whether the accident which he met with in crossing a river, when he was thrown from his horse, cut him off in the vigour of life, certain it is that his days were now numbered.

On October 26, 1277, he added a short codicil to his will, leaving the residue of his property to his college. The day, or the day but one following, he expired—we know not in what year of his age.

The place, too, of his death is not exactly known. He was buried, according to his will, in the cathedral of Rochester."

His tomb, executed at Limoges, was briefly adverted to; but the buildings of the college, as they now stood, the lecturer said, he would leave for some other time.

ARCHITECTURAL INSTITUTE OF SCOTLAND.

A MEETING of this Institute was held last week in their rooms, George-street; when an exhibition of photographs from the London Architectural Photographic Association was opened, with some remarks by Mr. David M'Gibbon, architect, honorary local secretary to the Association.

In the last report of the council, just now published, they say, with reference to their transactions, "they think, in the present state of their funds, it would be more desirable, and would be more conducive to the prosperity and healthy vigour of the Institute, were the recommendation of the professional members, given three years ago, now adopted and carried into practical effect, by the publication, in lieu of Transactions, of a series of lithographed engravings of select examples of buildings, ancient and modern."

THE LABOUR QUESTION.

A WORD TO WORKMEN.

SEVERAL of the largest building firms in London, including Messrs. Lucas Brothers, Kelk, George Smith (of Pimlico), and Peto & Co., propose to pay their men *by the hour*, on and after the 23rd instant; in order, as they hope, to take away any excuse for another strike on the nine-hours question. The trade generally will, it is expected, adopt the arrangement in a short time. The rate of wages will be 7d. per hour for skilled mechanics, and 4½d. per hour for labourers; being an advance of about 1s. 2d. per week to the former, and 8½d. per week to the latter; assuming that they work 58½ hours per week, as at present.

A meeting of carpenters and joiners took place on Friday in last week, in the Great Hall of the Freemasons' Tavern, Great Queen-street, Lincoln's-inn-fields, to consider what steps should be taken to obtain the reduction of working hours in the building trade from ten to nine daily; Mr. Hamlin in the chair. The chairman having briefly opened the proceedings, the meeting was addressed in support of resolutions condemning the present number of hours as destructive of the physical well-being of the working carpenter and joiner, and incapacitating him for all mental culture. It was resolved that the present working hours should be reduced from ten to nine, and that the masters should be requested to receive a deputation of the working men to discuss the question. The meeting also pledged themselves to persevere in their demand.

The secretary, Mr. Potter, in the course of his remarks, said he was informed, but he did not announce it officially, that the masters wanted to compromise the matter, and had offered them 7d. per hour. They would not discuss that question that evening, as it would be considered at a future time. He also stated that he had just received an application from the men of Edinburgh for assistance to carry on the strike.

Although the meeting would not then discuss the masters' proposition, we may be allowed to say a word or two upon it. The proposed "arrangement of payment by the hour," say the masters, "will enable every man employed by us to work any number of hours he may think proper, being paid for the time he actually works, in accordance with the above increased rates." Those who work the ten hours, it will be seen, may thus, if they please, leave off at two o'clock on Saturdays, without lessening their wages, or may restrict their labours to nine hours each day at a loss of 1s. 6d. per week, or may work as they do now, with a gain of 1s. 1½d. per week. The masters' machinery and their horses may thus be kept at work for ten hours each day (points of some importance in the inquiry), even though a certain number of the men elect to cease work at half-past four.

It can scarcely be denied that the masters who offer this arrangement are making a very considerable concession. Take, for example, the first-mentioned firm, Messrs. Lucas. These gentlemen, we believe, are employing at this moment about 3,000 men. Counting the mean increase at 1s. per week per man, it is seen to amount to 150*l.* per week, and 7,800*l.* per annum. In future contracts this may be provided for, and the public made to pay it; but on their present contracts, of course, the sacrifice is their own. It is most sincerely to be hoped, that the men may view the offer as a reasonable proposition.

Knowing as we do that some of the leading masters are pledged against the demand that they should give ten hours' pay for nine hours' work, even to the extent of closing their shops altogether, and retiring from the business; a persistence in that demand would lead, we feel certain, to a repetition of the last prolonged and most disastrous struggle,—a struggle which pauperized, demoralized, and killed,—and for which recurrence the masters have, to a certain extent, prepared, by obtaining, in all their contracts, a protective clause, in the event of a strike.* This, it will be seen in our present number, was admitted by the architects at the last meeting of the Institute, where the proposition to pay by the hour was apparently regarded as one that ought to settle the difficulty and get rid of the present state of uncertainty, which is most injurious to every one. At any rate, the present proposal on the part of the masters will bring the discussion from its false footing on to the real one. The only question, as it seems to us, that can now be raised is, the rate of pay, in the determination of which these two questions, amongst others, will call for consideration; namely, does the demand for workmen exceed the supply; or is it a fact that at this moment hundreds, nay thousands, are out of employ? and secondly, is not the cost of building so great, even now, as to prevent it from being considered a wise mode of investing money?

Most earnestly we implore those workmen of the United Kingdom who honour us with their confidence, and believe that we would gladly aid in endeavouring to obtain for them any advantages that could be wisely asked for, to consider this proposal coolly and frankly, and to lend their aid vigorously and at once, in their several circles, with a view to terminate the present uncertainty that prevails, and to prevent the possibility of another desolating, demoralizing, and destructive strike.

We add a few items of news on the subject from various parts of the country.

The Bath master builders and masons have unanimously resolved, at a numerous meeting, that it is their bounden duty to resist the demand of the operatives to leave work at four o'clock on Saturdays, but that they will allow them to leave work at half-past four, and give them 2s. a week extra wages.

The strike still continues in Edinburgh among the masons. Many of them have left Edinburgh. It is said that one contractor has given in, and taken on as many of his men as remained in the city. A meeting of the operative trades of Edinburgh is to be held on an early day to consider the nine-hours movement.

The joiners of Hawick having intimated to their employers that they required one shilling extra per week, and the Saturday half-holiday, and the employers not having complied with the request, the men struck work, but resumed it, a compromise having been come to. The masters acceded to the half-holiday, and the men renounced the advance demanded. The hours of work will now be fifty-seven, in place of sixty.

The blacksmiths of St. Helier have struck for shorter hours of work. They work daily, according to the *Jersey Times*, from 6 a.m. to 7 p.m.; and they ask that that time be shortened one hour. Three masters, it is said, have yielded.

Mr. Mackinnon has again introduced a bill for establishing equitable councils of conciliation to settle differences between masters and operatives. It proposes that the councils shall consist of an equal number of masters and workmen, elected annually by their own order, in any place where persons choose to put the Act in force; besides a chairman (a person unconnected with trade) chosen by the council. The councils, obtaining a licence from the Crown, are to have power to hear and determine disputes between masters and workmen, submitted to them by both parties; and their award is to be final and conclusive, and not subject to review or challenge by any court or authority whatsoever. But the Act is not to authorise the councils to establish a future rate of wages; nor is it to extend to domestic servants, or servants in husbandry. No lawyers are to be allowed to attend on any hearing before the councils.

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* This is the case, we are told, even in the contract for the intended Exhibition Building, great as the desire is to have the structure completed within a certain time.

ON WARMING DWELLING HOUSES AND HOSPITALS.

I BELIEVE it is now generally admitted, that when artificial heat, beyond that obtained from open grates and common stoves, is required, a hot-water apparatus is the best; but unfortunately it is so often put up by inexperienced tradesmen, under the direction of unscientific employers, especially in the country, that perhaps no other practical application of a scientific principle, though intrinsically sound and safe, causes more frequent disappointment and loss.

The country squire for house or greenhouse, the parson for church or school, orders of the nearest ironmonger a hotwater apparatus. They buy their experience. Accidents ensue to boiler or pipes, heat is deficient, and the consumption of fuel improvidently wasteful. A short-sighted economy is, for the most part, at the bottom of all this. It would be prudent in the end to make a more liberal outlay; but there are times when this difficulty cannot be overcome, and risks are run. Thus in small works, when a professional engineer can rarely be called in, blunders are frequent. I speak feelingly; but, still, I believe, even in these a little ordinary precaution may secure success.

It lately happened that the committee of a new asylum at Barnwood, near Gloucester, for ladies and gentlemen, were anxious to adopt the best improvements in warming and ventilation, and they entrusted me, as one of their body, who, like others, had bought my experience, to superintend the preparation of a plan which would tend to prevent the errors of which I was cognizant. Referred, for the first time, to the valuable treatise of Mr. Hood, "On Warming Buildings," I at once perceived the source of most of these defects. The various proportions of the apparatus had not been properly calculated.

To assist the tradesmen we were employing, the following table was drawn up from the data so clearly given in the work mentioned. From this table, and adopting the furnace and boiler recommended by Mr. Hood at p. 88, their various parts were computed by analogy from the cubic feet of air required to be heated in the building in question. Two of these apparatuses are now at work, one in each wing. During the last twelve days of December, 1860, when the cold was so severe, the radiating pipes which circulate in the floors of the galleries raised the average temperature within, above that without, by 31° of Fahrenheit (registered in both cases between 6 and 7 a.m.), the furnace fires not having been made up in the night. For the purposes of ventilation, the air to be heated is drawn over the pipes directly from without, through an opening in the outer wall at the end of each gallery, and then passing through the rooms, is carried off by extraction-flues, communicating with fires in turrets above; so that the degree of heat obtained under such circumstances must be considered as satisfactory, while the ventilation was equally so. It is true the proportion of fuel calculated for a maximum duty was then slightly exceeded, but since the frosts of winter have ceased, and under a more experienced stoker, the fuel consumed does not now much exceed one-third of that calculated for its greatest consumption.

In noticing these circumstances, I am aware there is nothing very remarkable in the results beyond the fact that blunders seem to have been escaped, *immediately* by the simple expedient of having had the proportions as calculated from the enclosed table strictly observed.

What helped us may help others. With this view I have obtained permission to beg you to insert the table in question in your journal. It gives, in a concise and intelligible form, all the proportions requisite to success, and enables any one, of moderate experience, to calculate the proportional dimensions, and check the apparatus he is about to use. I am quite aware that to the professional and experienced engineer these figures will appear elementary, but it must be remembered that I am only now striving to save those who have not always the means of consulting engineers from falling into mistakes which are serious to themselves, and tend to bring a most useful invention into undeserved disrepute.

W. H. HYETT.

Relative Dimensions of a Hot-water Apparatus for Warming Dwelling-houses or Hospitals, in which from 50,000 to 100,000 cubic feet of air may be kept at a steady, constant heat of about 30 degrees of Fahrenheit above the external temperature, by 4-inch radiating pipes circulating through the building, computed from data given in Hood's treatise "On Warming Buildings," &c., third edition, 1855; from which the corresponding parts of any similar apparatus, *within the above limits and for this class of buildings*, may be readily calculated by analogy:—

Air in the Building to be Heated.	1 4-inch Pipe.	2 Direct Fire Surface of Boiler.	3 Area of Furnace Bars.	4 Opening between Bars.	5 Area of Chimney.	6 Contents of Pipes.	7 Contents of Boiler.	8 Con tents of Supply Cistern.	9. Coal burnt per Hour when Worked at a Maximum
Cubic Feet. [say 100,000]	Foot run. 1,000	Sq. Feet. 22	Sq. In. 500	Sq. In. 145	Sq. In. 56	Gallons. 544	Gallons. 65	Gallons. 20	lbs. 38

References to "Hood."—Column 1. See art. 2. Col. 2. See arts. 71 and 72. N.B. 3 feet of fine surface equal to 1 direct. Col. 3. See Table III., art. 79. Col. 4. See art. 79. Col. 5. See art. 91. Col. 8. See art. 39. Col. 9. See arts. 79 and 114. N.B. Power and economy of fuel, with a careful stoker who understands his apparatus, may be gained by increasing the dimensions at columns 2, 3, 4, and 5, and trusting more for draught to damper and ash-pit door.

*** The above proportions apply only to ordinary inhabited houses; and even in these, there are often conditions which call for modifications. For other buildings, the discrepancies would be great. Churches and factories only require 5 or 6 feet of 4 inch pipe, instead of 10, as in dwelling-houses, for every 1,000 feet of air to be warmed; while greenhouses, where the whole glazed surface diminishes the temperature so fast, will require 35; and hothouses, where 65 degrees of Fahrenheit are necessary at the least in the coldest weather, 45, and where 70 degrees, 50 feet of pipe for every 1,000 feet of air to be heated. See "Hood," article 111, pp. 114, 115, 116, and 117. Where large anomalous buildings are to be treated, it is almost needless to say that engineers of known character and ability should always be called in. W. H. H.

THE ROYAL EXCHANGE.

IT is lamentable to find that the elegant interior quadrangle of this structure is about to become the sport of experimentalists.

So few are the finished works of architecture in London, that really there are none to spare, either for professional tampering or spoliation. Violence enough has been already done to the exterior, by deforming the original design with most incongruous if not unsightly shops: are we now to have the interior converted into a railway shed, and half of it cut off by *a velum* of dust and smoke blacks?

Last week you said it was to be only in part covered in, *by way of experiment!* Possibly it is so; and if so, it is only in accordance with recent practices;—as the Wellington spectral statue was first placed in effigy over the Piccadilly arch; the symbols and mottoes of the Guards' Memorial were sketched out to test the public endurance; and the equestrian Don Giovanni, opposite the Westminster Palace, was in like manner put on trial, only to prove how little can be learned from the effects of indecision.

Are the subscribers of Lloyds', or the captains' rooms, to be the arbiters in a matter of professional skill? or is the architect who designed the Royal Exchange to have no voice in an alteration which must either improve or destroy his performance?

Neither Dr. Reid nor any other Æolian professor is needed to explain how the whole internal area, as well as the chambers looking into it, should be best ventilated by a glazed roof resting on the highest sustaining points, or parapets; for gateways on every side would be the feeders, and ample louvres all round the roof the ventilators; amply sufficient to maintain a healthy vital current; and, at the same time, light enough to occasion no perceptible shadow. Such a roof was recommended in the *Builder*, very soon after the opening of the Exchange. QUONDAM.

FAMINE IN INDIA.

NEWS comes of a terrible famine which is raging in a large district of India. Men, women, and children are perishing. The animals, both domestic and wild, drop down dead for the want of subsistence. Even birds fall in consequence of the want of seeds or other food. So great has been the distress, that women have sold their children for sevenpenny-worth of rice. Prostrate with hunger, as we learn from good authority, the people have not strength to cultivate the next crops, and there is every reason to fear that pestilence will follow. The most influential portion of the Indian press call earnestly for the aid and consideration of this country, and implore the English press to bring the circumstances before the notice of a generous public. It appears that a sum of about 200,000*l.*, a portion of the mutiny fund, remains unused; and it is suggested that it would be a noble act to devote it to the purpose of staying some of the evils of the famine, and endeavouring to prevent a pestilence, the extent of the spread of which no one can foresee. Steps to prevent its recurrence are needed, as well as temporary palliatives.

CHESTERFIELD.

THIS old town, which is remarkable for its church and crooked spire, was, on Monday morning, the 11th inst., visited by a violent storm of hail and snow, accompanied by fearful peals of thunder and lightning, which was nearly occasioning the destruction of the old church and spire. One of the windows in the ringers' chamber was left open, inside of which was an iron wire communicating with the transept of the church, for the purpose of a signal to the ringers when to stop the bells. The lightning struck this wire, and, in its course, ran across a gas-pipe, completely severing the pipe, and igniting the gas, which was not turned off from the mains at the meter. The fire came in contact with the board ceiling and roof of the nave, and would soon have had good play upon the timbers. Had not the sexton had occasion to go to the bell-chamber and make the discovery in time to check its progress, the result might have been the destruction of the old church altogether, with the spire, which is wholly constructed of timber, and which must have fallen a prey but for the timely assistance at hand, as there are no fire-engines in the town or neighbourhood of any service in such an emergency.

Last year architects were invited to furnish designs in competition for national schools here. There were twenty-six designs sent in. The one selected by the committee was by Mr. Rollinson, of Chesterfield, architect, as being the most suitable to their requirements. On application to the Committee of Council for Education, the site was considered inadequate for schools of the capacity required to be built, which involved the necessity of a new site being obtained. His Grace the Duke of Devonshire having supplied the deficiency by furnishing a site, the committee are taking early steps towards carrying out their object.

STAINED GLASS.

Little Cawthorpe Church.—A memorial window and mural monument have just been placed at the west end of this new church, in remembrance of the late L. Parker, Esq., a liberal donor to, and chief promoter in, building the present church, which he lived just long enough to see completed. The window contains the subjects of "Noah entering the Ark," the "Passage of the Israelites through the Red Sea," and the "Baptism of our Lord;" and was designed and executed by Messrs. Lavers & Barraud. The monument, which is placed under the window, is in Ancaster stone, with serpentine columns, richly carved by Mr. T. Earp, and contains a brass by Skidmore. Mr. Withers was the architect employed.

Sheriff-Hutton Church.—The eastern window has been filled with a stained glass memorial window by Mr. David Rowlay, of Thirkleby, to the memory of the Rowlay family, who are interred in the chancel of this church. The subjects chosen, as most suitable for the situation, are the Four Evangelists, with a figure of our Saviour in the centre light. The figures are represented as standing in canopied niches, at the back of which is diaper work. The tracery has been filled in with stained glass some few years. This window is the work of Mr. J. W. Knowles, glass stainer, York.

LONGTON MARKET COMPETITION.

THE commissioners of the town of Longton, in the Staffordshire Potteries, invited nine architects to send in designs for a new covered market, enclosing an area of about 4,000 square yards, the cost not to exceed 9,000*l.*, and on the 1st of February last designs were received under motto from Messrs. Ward & Son, of Hanley; Mr. W. Higginson, London; Mr. G. L. Robinson, Leamington; Mr. Yeoville Thomason, Birmingham; Mr. Henry Lloyd, Bristol; Mr. John Burrell, Longton; Mr. Frederick Bakewell, and Messrs. Sutton & Paul, of Nottingham.

In consequence of several of the mottoes becoming privately known, it was resolved to open all the sealed envelopes enclosing the authors' names, and commence proceedings *de novo*.

On Tuesday last the committee, by a large majority, decided to recommend the general body of commissioners to award the first premium to Mr. Burrell, and the second to Mr. Yeoville Thomason.

COMPETITION: HEREFORD.

We are informed that the design of Mr. J. H. Evins, architect, of Hereford, has been selected for a new chapel and entrance to the new cemetery, for the parish of All Saints, Hereford. Tenders will be advertised for immediately.

NOTES ON COMPETITIONS.

Sunday School, Preston.—A chance of obtaining 10*l.* 10s. is the munificent remuneration offered to such members of the profession as are willing to furnish designs and specifications. Area of site, 93 feet by 47 feet average. Outlay, 1,200*l.* "The party whose plan is approved will *not* have the superintendence of building." I suggest that the *party* who is to be entrusted with the superintendence is (or ought to be) competent to produce the design. Architects surely will not respond to such an invitation as this.

Saltburn-by-the-Sea.—The committee charge 5s. for plans of site. Intending competitors should wait till they are less expensive.

INVESTIGATOR.

BRADFORD CHURCH COMPETITION.

SIR,—We perceive in the *Builder* a paragraph alluding to a competition for a church at Bradford, Manchester. We think it right to state that we were applied to by the committee for the above church for plans for the same just before Christmas, and without any solicitation on our part. One of these plans was selected, and was evidently intended to be carried out. To our surprise they were returned without remark; and on inquiry we found that three or four architects, including ourselves, were invited to send in designs for the building.

We have thus made two sets of drawings *without remuneration*, unless we resort to possible litigation, and also lose the future support of our friends. We wonder that respectable architects should have competed under the circumstances, but can only suppose they were not cognizant of our appointment. The stipulated cost was to be 3,000*l.*, including lighting, heating, commission, &c., and not 3,300*l.*

SHELLARD & BROWN.

COMPETITIONS: NORTHAMPTON TOWN-HALL.

SIR,—Your announcement concerning the Northampton Town-hall competition was rather startling. Up to that time there had been nothing to lead competitors to suspect any underhand proceedings; but that a committee of thirteen should resolve to choose six designs from the forty sent in; and then only five of them do anything; and those five each quietly pick one or two he fancied best; or, what is more probable, knew to be the production of some friend, is a strange way of arriving at a just conclusion.

There has been a good deal of this kind of work in competitions lately. The strange fact, that local men so continually succeed, cannot be accounted for by fair play. At Leeds, for instance, the premiated designs for the Mechanics' Institute were all by Leeds men; and there can be little doubt that the majority of the committee had made up their minds that the building should be given to one of these, before the advertisements were inserted.

At Lincoln, too, not long ago, I remember, the committee for selection found, *on opening the letters*, that the prizes were all to be given to men connected with the town. I need not bring further instances: they are so numerous that your readers will remember many.

To ensure fair play on the part of those advertising for plans, and confidence on that of the competitors, is the chief thing that requires correction.

There have been various plans from time to time discussed in your columns; and I think that the profession should take the thing up in earnest. Of course, such competitions as I see advertised in your last (viz., 10*l.* premium for designs for a school to cost 1,200*l.*), cannot be affected: at least I see little hope of doing anything to them. The men who consent to work for the chance of one-third the remuneration they would expect if they had the work given them, certainly must take their chance, and blame themselves if they get cheated. It is for the better class of competitions, where there is no *primâ facie* intention of either meanness or bad faith, that a remedy is required; and I think that lies with the Institute of British Architects. It is recognised as the leading body in the profession; and, if its members resolved that they would send in for no competition for which they had not a guarantee that its merits would be decided by a committee of its own fellows; then, if the higher talent in the profession is to be brought into competition, this guarantee must be given, and competitors would then have confidence that they would receive fair play, and the character of competitions be greatly raised. I am not without hopes, in the present case, that the Town Council of Northampton, when they appreciate the fact that their present proceedings are looked upon as something very like swindling, will be led to retrace their steps. Of course no respectable member of the profession will lend his name to such a proceeding by choosing from the six alone; and I should like to remind the council, that there will always remain a strong feeling of dissatisfaction and suspicion, unless all the designs are exposed for people to draw their own conclusion upon them.

W. M. F.

PREVENTION OF COLD WITH OPEN ROOFS.

In your issue of the 19th January last, "Devon" inquires "how the inconvenience of an open roof in the very coldest of all parish churches can be rectified?" May I be allowed to suggest the following as a means to remedy the evil complained of? namely,—Strip off the slating (or outside covering of roof): stop nail-holes, cracks, or other defects, if any: cover the old boarding with roofing felt, on which lay, longitudinally, timbers 3 inches wide by 2 inches in depth, securely fixed to the roof, not more than 2 feet apart, with one at eaves and ridge; also, from eaves to ridge, at valleys, hips or gables, as may be required: cover the same transversely with 1½-inch grooved and tongued boarding, or counter roof boarding, on which relay slating, or other covering, as the case may be; by which means "Devon" might probably obtain the much-desired object without any interference with the interior arrangements of the church. The foregoing might probably be found to answer with advantage, over close-boarded roofs, to many private dwellings, as a means of keeping attic rooms much warmer in winter, and cooler in summer.

H.

Quebec.

BRAY'S TRACTION ENGINE COMPANY.

SIR,—In the review of Mr. Young's work, entitled, "Steam Carriages on Common Roads," in your last number, you quote, in speaking of Boydell's engine and its endless railway, the following extract from the text:—"The endless railway attached to locomotives is the only means, hitherto invented, by which steam can be used advantageously on common roads under all circumstances." As, I believe, Mr. Young was for some time the engineer to Boydell's company, it is not, perhaps, to be wondered at that he should be prejudiced so strongly in favour of that system, as his interests were identified with it; but as such a statement is calculated to mislead the public, I have enclosed two letters received within the last few days, in which two very eminent firms quote their experience of this company's engines; and I may add, with reference to Messrs. John Penn and Son's, that on Monday last, a condenser for the engines of the "Black Prince," armour-clad vessel, weighing about 30 tons, was successfully removed from their factory to Deptford, and also that our engines are working there to-day.

S. H. LOUTTIT, Secretary.

THE REGENT STREET ROADWAY.

THE Vestry of St. James's, Westminster, at their meeting on Thursday, the 21st inst., decided on accepting a tender for the entire maintenance of the roadway of Regent-street in Macadam, for a period of seven years, at 3,500*l.* per annum.

Three years ago, the determination of the Vestry to carry out, against the earnest entreaty and remonstrance of the inhabitants, a resolution to pave the streets with granite blocks, led to such a change in the constitution of that vestry as not only stayed the proceeding, but resulted in the removal of the management of the parish out of the hands of the party who had uninterruptedly carried the sway ever since the first adoption by the parish of Hobhouse's Vestries' Act, 27 years ago;—which Act—now, however, merged into the Metropolis Local Management Act—this parish was mainly instrumental in calling into existence.

The vote of Thursday, carried by eighteen to twelve, it will be seen, fixes the continuance of the roadway of this fashionable thoroughfare in Macadam for some time at least to come, and at the same time sets the parish at peace.

Books Received.

Notes of Family Excursions in North Wales. By J. O. HALLIWELL, Esq., F.R.S. London: printed for the Author. 1860.

MR. HALLIWELL appears to have chosen a healthful and entertaining exercise both for body and brain, when he resolved on making a few excursions in the picturesque principality of North Wales as a relief and diversion (it would seem), from his graver and more absorbing Shaksperian and other labours. And he evidently regards the production of this pleasant volume, which he has had privately printed for the amusement of his friends, as a specific ingredient in the medical prescription which it was his duty faithfully to follow out, at least for his own amusement, and hence benefit. To use his own free and easy figure of speech in explaining his object, the brain-fagged author, such as he, "takes up the first subject that comes uppermost; pegs away at it any how; and, after amusing himself with correcting the proof sheets, turns out a little volume, much such a one as this is. It is not the least odds to him if any one reads it or no. The object is attained: the brain is relieved: the headaches are gone."

The excursions were taken chiefly from Rhyl, Abergele, Llandudno, and Bangor; and whatever the author may please to say of it, by way of disarming criticism and accounting for any little traces of haste or carelessness in its composition; the volume will henceforth, we should think, form one of the best and most pleasant guidebooks to that part of Wales. Nay, something more than that; for even here Mr. Halliwell has not always managed to give his powers of research the benefit of a complete holiday; and hence his volume is studded here and there with apt or curious quotations from old and little-known or almost forgotten authors, such as Gerard, the botanist, of Elizabeth's time; Thomas Johnson, the naturalist, Sir John Branston, and Sir John Wynn, all of the seventeenth century; Taylor, the water-poet, and others. Of such authors as Leland, Dr. Johnson, and Pennant, Mr. Halliwell also, of course, makes fair use; so that, over and above the descriptive matter, a good deal of research has been brought to bear upon this very pleasantly-written volume.

Miscellanea.

ARCHITECTURAL MUSEUM.—On Wednesday evening last, Mr. E. A. Freeman, M.A., lectured in the theatre of the museum, taking for his subject "An Architectural Journey in Aquitaine.

DESIGN FOR FILTER CASE.—The premium of 5*l.* offered by the Silicated Carbon Filter Company (Dahlke's Patent), for a design for filter case, has been awarded to Mr. J. Gouldsmith Rolls, C.E., of Church-court, Clement's-lane.

HAMPSTEAD CHAPEL COMPETITION.—Another architect is now named to us as having been selected for this work; but, as the committee appear not to know their own mind, we must wait till they do.

DUNDEE CORN-EXCHANGE COMPETITION.—We understand, says the Dundee *Warder*, that the Corn-Exchange Committee has approved of the plan of Mr. Campbell Douglas, architect, Glasgow, for the Corn-Exchange here: the other competitors were Mr. John Milne, architect, St. Andrew's; and Messrs. Hay, of Liverpool; and at the Lunacy Board, which met on Tuesday, it was decided to get new plans for the Lunatic Asylum for the counties of Fife and Kinross.

ROYAL SOCIETY CONVERSAZIONE.—The president's first *conversazione* was held on the 16th instant. Mr. De la Rue's photographs of the late eclipse, as seen in Spain, and Professor Tyndall's exhibition of the spectra of metals (in illustration of a paragraph in our last number), were amongst the principal features of interest.

"GAS LEAKAGE FROM STREET MAINS."—With reference to this subject, Miss Martin reminds us that her late father, Mr. John Martin, took out a patent some years since for a pipe junction, which, from a printed description forwarded to us, appears to have consisted of a coupling of metal in two pieces, and forming a band suitable for embracing the ends of the pipes when laid close together; there being dovetailed projections on the band for enclosure by dovetailed slips for securing the pieces of the band: both clips and dovetailed projections are wider at one end than at the other, so that, when forced on, the whole is wedged tightly together, after a coating of cement, such as white lead or pitch combined with tar, or thin felt saturated with pitch, has been laid on. Mr. Martin intended his coupling either for cast-iron pipes or for those of fire-clay; but he was desirous of having gas-pipes of glass, connected by the metal bands; thus giving effect to Sir Robert Peel's suggestion of glass pipes.

THE NATURE AND OBJECTS OF THE SOCIETY FOR PROMOTING LAW-AMENDMENT.—The society was founded in 1844, under the presidency of Lord Brougham, for the promotion, by discussion and otherwise, of the careful and cautious improvement of the law of England in all its branches, and suggestions to the Legislature and the public of defects and remedies. The society is composed of members of the Legislature, landed proprietors, merchants, and professional and independent gentlemen. Papers are read and discussed, and committees appointed to consider and report on proposed amendments: these papers and reports are published. The society has an excellent Law and Parliamentary library. The subscription is 2*l.* 2s. per annum. It is needless to observe how much the community at large owes to this society. It is with a view to enlist support on its behalf that we recur to the subject; and, in a country where law-amendment is still so much needed, the mere statement of the objects of such a society must suffice to recommend it to notice.

ST. SERNIN, TOULOUSE.—Oblige me by correcting an error made in "Notes on Romanesque Art in the South of France." I described St. Sernin, at Toulouse, as a *three* aisled Latin cross basilica: it should have been *five* aisled.

J. B. WARING.

HOSPITAL AT LISBON.—It is stated that Mr. J. M. Rogers, architect, has been engaged to make the drawings, under the superintendence of Mr. A. J. Humbert, Dr. Sutherland, and Miss Nightingale, for the hospital for children to be erected at Lisbon.

THE BATH SURVEYORSHIP.—The City Act Committee, at a special meeting on Friday, unanimously agreed to elect Mr. A. Mitchell, the city engineer, to the surveyorship of the City, vacant in June next by the resignation of Mr. Parfitt.

YORKSHIRE COTTAGE COMPETITION. — Mr. James T. Lea says his name should have been coupled with that of Mr. Bowden, as the joint winners of the first prize under "Class 3." Our list was official.

TRADE-MARKS: PROTECTION TO ARTISTS.—Lord Campbell has introduced into his bill on fraudulent trade-marks a clause making the forging of an artist's name, sign, or monogram, on any picture, engraving, or work of sculpture, a misdemeanor, punishable by fine and imprisonment. The thriving trade in counterfeit modern masters will thus receive a wholesome check.

CHICHESTER.—The Dean of Chichester has recently presented to each of the workmen engaged in the restoration of the cathedral, a mourning card, containing two resolutions passed at the meeting held in Chichester, February 26th. The one acknowledges the goodness of the Almighty in sparing life; and the other returns thanks to those entrusted with the work for their exertions to avert the calamity.

GLASGOW CATHEDRAL WINDOWS.—Other three painted glass windows have arrived at the cathedral this week, from Munich. The donors are the Duke of Buccleuch, Sir John Maxwell, and Mr. Stirling, of Keir. The Hon. W. Cowper, First Commissioner of Her Majesty's Works, has decided that the windows of the chapter-house and crypts, not filled or to be filled with painted glass from Munich, are to be executed by British artists.

A CHECK TO THE CHARING CROSS RAILWAY.—Vice-Chancellor Page Wood has granted an injunction to restrain the Charing-cross Railway Company from taking proceedings compulsorily to acquire *a portion* merely of the premises of St. Thomas's Hospital, without taking the whole, the hospital trustees being able and willing to sell the whole. It is argued that the purchase of the whole will annihilate the undertaking, as the purchase-money of the hospital would be 750,000*l*. An impression prevails that the trustees have not behaved very well in the matter.

A NEW BRIDGE TO CROSS THE THAMES AT BRENTFORD.—At a recent public meeting of the inhabitants of Brentford a discussion took place as to the construction of a bridge proposed by the Great Western and Brentford Railway Company to be thrown across the Thames from the present terminus at Brentford to Kew Gardens. A bill is now before Parliament for carrying it into effect. It is anticipated that the railway will bring an immense accession of visitors to Kew Gardens from the West, and that it cannot fail to be of great advantage to Brentford to have the ready means of communication with the opposite shore which this bridge would afford. The total cost will not exceed 8,000*l*., and it is not proposed to ask the inhabitants of Brentford for a shilling of the money. The maximum toll to be permitted by the Act is one penny each person.

THE LENDAL BRIDGE AND BLAKE-STREET IMPROVEMENT, AT YORK.—These works are progressing, and the bridge will probably be thrown open to the public during the autumn of the present year. Mr. Dredge is the engineer. The removal of the houses in Little Blake-street, and the opening already made in Lendal and Museum-street, the construction of the land arches, &c., enable the citizens to form an opinion of the improvement contemplated. The *York Herald* states, however, that "a portion of the house now occupied by the Rev. Thomas Richardson is in the direct line of view; and that, unless it be removed, the new street, instead of being straight, will be curved at the very point where it will interfere with the view of the Minster from the bridge;" and that "a portion of the house occupied by Mr. James Allen presents a similar obstacle; and the rounding off of the corner ought to be a much more sweeping affair than is at present contemplated."

LARGE CASTING.—An enormous casting has been made in the foundry of Messrs. R. and G. Harris, of Rotherham. The total weight of the casting is 33 tons 10 cwt., and it is to form a bed for an immense hammer at the new works of Messrs. John Brown & Co., Sheffield. The metal was run from the cupolas in four minutes and a half.

THE RAILWAY BRIDGE OVER THE RHINE AT COLOGNE.—The great railway bridge over the Rhine at Kehl and Cologne, of which we gave an engraved view on 2nd June, 1860, is now nearly completed, and experiments to test its strength were lately made on it. First of all the two turning parts of the bridge were manœuvred, and were found to work well. That of the French side, which weighs 350 tons, was moved with facility by eight men, then by four, and then only by two. After several other preliminary experiments, two trains, each consisting of five locomotives, were driven over the bridge side by side, and were made to remain together some time on the turning bridges, and on other portions of the structure: lastly, these two trains crossed each other at full speed. During the experiments the different parts of the bridge, it is said, scarcely yielded at all.

THE NEWCASTLE-UNDER-LYNE SCHOOL OF ART.—The annual meeting of this school has just been held; Mr. Jackson, M.P., in the chair. The attendance was numerous. The committee's report stated that the number of persons who had been taught drawing through the instrumentality of the school was 430, being an increase of eighteen on the previous year. Eleven medals for twenty-three drawings had been awarded. Fifty per cent. of the works examined were found deserving of medals, and six drawings were forwarded to London for national competition. The income of the school, including 25*l*. given by Mr. Jackson, had been 62*l*. 9*s*. 6*d*.; and the expenditure, including a balance of 22*l*. 1*s*. 10*d*., brought from 1859, 58*l*. 2*s*. 6*d*. The committee acknowledged the presentation to the school, by Mr. Ruskin, of a water-colour drawing of fruit by William Hunt. On comparing the works of 1859 with those of 1854, there was, it was said, a very marked advance in all the grades of drawing.

BURSTING OF THE BRIDGWATER CANAL.—An accident has happened a few miles from Warrington, involving a considerable amount of damage to the Bridgwater canal, and the entire stoppage of the traffic. At Lumb Brook, Appleton, the canal embankment is 25 feet above the adjoining land, and the road to Grappenhall Heys passes under it. This embankment gave way on the south-west side, causing an immense breach. The wing wall of the bridge on that side was completely swept away. Some cottages in the immediate neighbourhood were several feet deep in water; and about 7,000 cubic yards of earth, &c., which formed the bed of the canal, have been carried into the lower ground by the force of the current. Nothing is known as to the cause of the accident. It is, however, attributed to the late severe frost, and to the strong winds causing flats to bump against the side of the canal. About a hundred navvies and other workmen were set to the work of restoration. The damage has been estimated to amount to some thousands of pounds.

TENDERS

For additions to Brockham Home, for Workhouse Girls, for the Hon. Mrs. Way; Mr. J. Norton, honorary architect:—

Carruthers	£200 0 0
Batchelor	193 0 0
Barnes	175 0 0
Thornton (accepted)	172 0 0

For the Norwich Corn Exchange; Messrs. T. D. Barry, Norwich, and Messrs. Goodwin & Butcher, London, architects. Quantities supplied by Mr. J. S. Benest, Norwich:—

		Oak Floor.
Cushing	£8,160	£800
Spinks & Young	6,248	600
Stanley	5,860	600
Lacey	5,565	550
Ling & Balls	5,398	760

For Cottages, Orpington, Kent; Mr. J. G. Stapelton, jun., architect:—

Townsend	£225 0 0
Sales	215 0 0

For the erection of Three Shops and Dwelling-house, for E. Moses & Son, Aldgate, corner of Jewry-street; Mr. D. A. Cobbett, architect. Quantities by Mr. Meakin:—

Mansfield & Son	£10,973 0 0
Dove, Brothers	10,875 0 0
Conder	10,160 0 0
Myers	10,083 0 0
Willson	9,889 0 0
Hedges	9,889 0 0
King	9,490 0 0
Hill	9,405 0 0
Perry	9,383 0 0
Ashby & Horner	9,349 0 0

For Two Houses, Forest-hill, Sydenham, Kent; Mr. J. G. Stapelton, jun., architect:—

Fowler	£1,340 0 0
Dover	1,293 0 0
Winder	1,200 0 0
Cannon	1,195 0 0
Thompson	1,140 0 0
Amer	1,125 0 0
Hemming	1,100 0 0
Amos	970 0 0

For the erection of Duncral House, and Offices, Perthshire, for the Right Hon. Lord Rolls; Mr. W. G. Habershon, architect:—

Neilson	£21,500 0 0
Craig	20,499 0 0
Stephen & Cair	20,445 0 0
Adam	20,097 0 0
Murray	19,972 0 0
Scott	19,835 0 0
Readdie	18,324 0 0
Brownlie	17,669 0 0
Moore	16,800 0 0
Parker & Sons	16,582 0 0
Griffiths	16,200 0 0
Weatherly	15,830 0 0

For the erection of United Presbyterian Church, Westbourne Grove-terrace; Mr. W. G. Habershon, architect:—

Matthews	£5,638 0 0
Adamson	5,597 0 0
Simpson	5,536 0 0
Patman & Fotheringham	5,525 0 0
Todd	5,496 0 0
Tarrant	5,000 0 0
Myers	4,986 0 0
Rudkin	4,980 0 0
Moore	4,794 0 0

For new Buildings and Alterations, at Half Moon and Seven Stars, 119, St. George-street East; Mr. Benjamin White, architect:—

Wood, Brothers	£563 0 0
Hedyer	553 0 0
Rivett, jun.	473 0 0
Blackburn	460 0 0
Howlett & Brown	455 0 0
Wilson	446 0 0
Dudley	395 0 0

For the new Roman Catholic Church of St. Joseph, at Stockport; Mr. M. E. Hadfield, Sheffield, architect. Quantities not supplied:—

First Estimates.

Davenport & Swindells	£6,500 0 0
Thackray & Pearce	5,999 0 0
Farrell & Ledger	5,488 0 0
Gilmore	5,396 0 0
Robinson & Son	5,300 0 0
Forrester	5,040 0 0

Second Estimates (omitting Tower).

Gilmore	£4,950 0 0
Forrester	4,510 0 0
Robinson & Son (accepted)	4,230 0 0

For building School-master's Residence, in connection with St. John's National Schools, Bethnall-green; Mr. W. Mundy, Jun., architect. Quantities supplied by the architect:—

Read & Son	£452 0 0
Perry	426 0 0
Livermore	423 0 0
Norris	417 0 0
Forrest	365 0 0

For St. Bartholomew's Hospital, Chatham; Mr. R. P. Pope, architect. Quantities supplied by Messrs. Poland & Dobson:—

Edwards	£14,700 0 0
Wilkins	13,767 12 0
Myers	13,560 0 0
Rummins	12,906 0 0
Jennings	12,125 0 0
Nayler	11,557 0 0
Watts	11,367 0 0
Stump (accepted)	11,311 8 0
Parkhurst	11,000 0 0

Soldiers' Institute, Chatham; Mr. A. Gough, architect. Quantities supplied by Welch & Atkinson:—

Foord	£4,198 0 0
Wilkins	4,082 0 0
Carter	3,775 0 0
Dove, Brothers	3,775 0 0
Stump (accepted)	3,498 9 0
Nayler	3,493 0 0

For Hackney district Sewers Works; Mr. James Lovegrove, C.E., surveyor:—

	No. 13 Contract.	No. 14 Contract.	Total.
Yeoman	£4,643 0	£1,217 0	£5,860 0
Wood	4,270 10	959 0	5,229 10
Cole	4,153 3	924 0	5,077 3
Cattell & Hills	3,826 0	937 0	4,763 0
Tottle	3,730 0	896 0	4,626 0
Stacey	..	1,168 0	..
Abbott & Hopwood (accepted)	3,744 0	802 0	4,546 0

For restoration of Chelwood Church, Somerset; Mr. J. Norton, architect:—

	Nave, Porch, and New Aisle.	Chancel.	Tower.	Totals.
Hughes	£666 0	£168 0	£180 0	£1014 0
Spiller	622 0	195 0	182 0	999 0
Diment	678 0	137 0	127 0	942 0
Baker	599 16	123 4	116 5	839 5
Chinnock	497 10	165 12	151 0	814 2
York	495 0	139 0	130 0	764 0
Wall & Hook	490 0	139 0	130 0	759 0
Streeter*	429 0	115 0	85 0	620 0

* Accepted.